

Good Woodworking

150TH ISSUE OF THE UK'S BEST WOODWORKING MAGAZINE**BUILD IT**

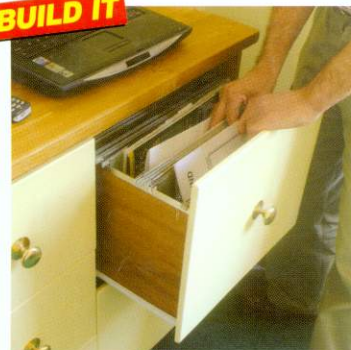
The ultimate workbench

Make this traditional cabinetmakers bench

Complete
pull-out plans
inside

THREE WHEELER

Why DeWalt added a third roller to their new belt sander...

**BUILD IT****STYLISH STORAGE**

Make an elegant filing cabinet for a home office

BUILD IT**CLEAN AIR ACT**

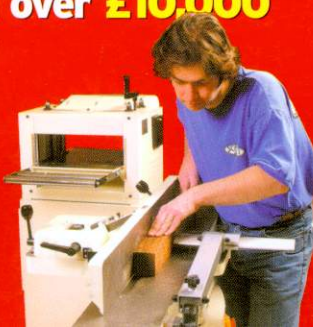
Are air filters essential or luxury workshop items?

ON TEST**BANDSAW BARGAINS**

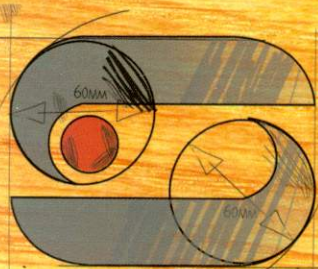
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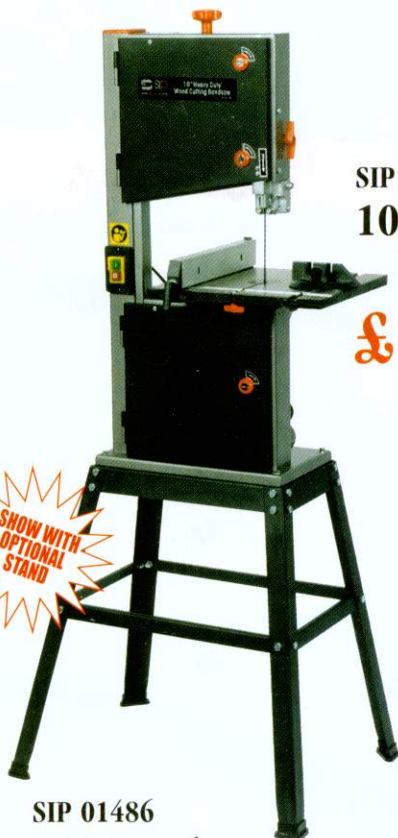


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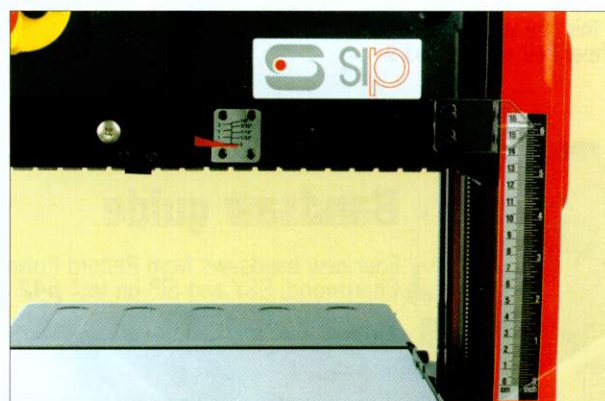
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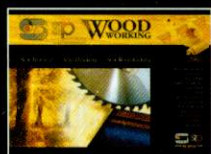


Cutter block lock facility



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Good Woodworking

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Fans of Jools Holland and *Later* will no doubt be aware that recently the 150th programme was screened on TV. Quite a musical milestone. We've got something to shout about as well, because *Good Woodworking* has also reached the ripe old age of 150! To help us celebrate we've got our biggest-ever competition courtesy of JET, plus 255 other prizes to be won. You'll need to collect tokens to enter the JET comp, so take a closer look at page 35 for details.

This month *Workshop Angles* visits Christian Becksvoort, a leading authority on Shaker furniture as well as being a fine craftsman based in New England. It was a fascinating visit, and great to meet a woodworker who manages to make a decent living using hand tools for much of his furniture.

Phil Davy Editor



Win a workshop full of JET machines p35!

Check out our new website: www.goodwoodworking.co.uk

Great new tools on test...

DeWalt DW433 belt sander

Is this the world's first three wheel belt sander? **p19**



Bandsaw guide

Four new bandsaws from Record Power, Charnwood, ESY and SIP on test **p42**



Veritas spokeshaves

Feel the quality of these beauties **p18**

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150TH ISSUE OF THE UK'S BEST WO

We aim to offer the best advice, projects & techniques, plus the most authoritative tests. All testing



255 PRIZES TO BE WON THIS ISSUE! p40

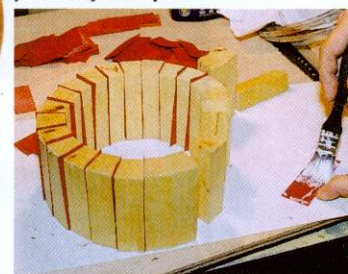
Filing cabinet

Decorative storage for your home office **p54**



Segmented turning

Turn this fantastic jewellery box **p64**



Air filters

Two home-built filter units to bust the dust in your workshop **p30**



TV zapper

Take control of your remotes **p85**



is independent, based on years of experience

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Decorative storage for all your essential paperwork

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Bandsaws

Good Woodworking's guide to buying a bandsaw £99 to £750 plus tests on ESY H360, Record Power BS300, SIP 01486, and Charnwood 711 machines

42

BUILD A BENCH

- ✓ Full pull-out plans for cabinetmakers bench
- ✓ Built-in tool storage
- ✓ Versatile front and tailvices
- ✓ Heavy duty build



SEE OUR
FREE PULL-
OUT PLANS
FOR THIS
BENCH
p49

Make this superb workbench

If you care about your woodworking you need a decent bench. This one is about as good as it gets p6

Win!

A JET WORKSHOP
WORTH OVER £10,000! p35

Shaker style

Workshop Angles visits
Christian Becksvoort p25



METRIC/
IMPERIAL
CONVERSION
CHART
p68



Wot a
chair!

Read how this
design stunned
them at
Chairs 2004 p74

Traditional cabin



Good woodworking demands a good bench and they don't come much better than this traditional design from **Ian Dalziel** with end vice and storage drawers



MATERIALS YOU'LL NEED

Tail vice
109 Euros (£80)
www.fine-tools.com;
Front vice
£25 Axminster.
T Track £14
Axminster.
Drawer glides & handles £45
Screwfix Direct.
5m³ beech:
Gilmour & Aitken
Scotland £300;
Rustins Danish Oil

Every woodworker needs a workbench, whether it be a simple board on two sawhorses, a Workmate or a full blown cabinetmakers bench. I have been using a borrowed bench for over a year but the time finally came when the owner's workshop was completed and he needed it back. This prompted me to think about either buying or building one. As you can see I opted to build it.

I made myself up a list of features I wanted for my bench. I also bought Scott Landis' *Workbench Book* which gave me great ideas but didn't have a bench design in it like that I already had fixed in my mind. I like the European cabinetmakers bench with its tool tray and solid massive top with dog holes and unobstructed corner tail vice.

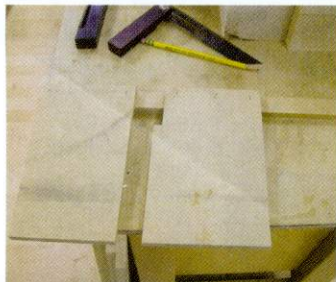
I know a lot of good woodworkers who have never

built their own, perhaps because the time spent building it is better spent using one, and I suppose the material and labour costs would amount to the same as one of the best store bought models. I had a

rough idea and bought small amounts of beech throughout the year just in case I did decide to build, so I didn't have a massive outlay all in one go. And the wood, having been stored in my

You'll find all the plans for this project on our centre-pages pull-out on p49

Constructing the under leg carcass



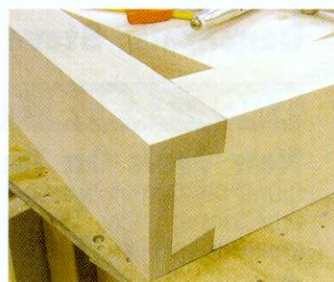
01 Make a template jig to rout the bench dog holes with. This has a slight angle so is used from both sides



02 Cut the main dovetail in the front top section by hand. This does not pass right through the timber



03 Transfer the shape to the end rail and cut the waste with a router before trimming to fit with a chisel



04 Check that your dovetail pulls the corner perfectly square as you assemble it

Netmaker's bench



workshop, was already acclimatised to my workshop environment

Before starting I asked myself what actually makes a good workbench, I surfed the net, read books and spoke to a lot of woodworkers on what would make the perfect bench, and every one was different, which was frustrating. But I then realised that variation is what

makes us all different and it is exactly the same for our work.

The woodworker's workbench is recognisable by its thick heavy top, which should be flat and be kept flat. It's usually heavy because it has to support work without flexing while planing, sawing, chiselling, etc, and absorb vibration from sanders. The base must be substantial if it's going to support a heavy top, and its design must resist any racking forces along its length and width. Storage for me is also a must, hence the drawers and tool tray.

My bench top slab is built entirely of beech, which I carefully picked from the timber yard and stored in my workshop for over six months, so it was well seasoned for use. The centre part

is 60mm thick with the outer edges and dog hole strip 100mm thick. The trestle frame is also beech, with cabinet grade plywood used for the drawers and their housing.

The front vice, dogs and T channel are from Axminster and the tail vice was bought from Germany (www.fine-tools.com) all other hardware came from Screwfix. The finish is Rustins Danish oil, four coats on the top slab and three on the base and drawers. I used this because it's so easy to apply and will get regular coats over the next year

How to Make the Top

1 First lay out all the lengths and cut around any unsightly knots. Cut to a length of 2100mm, 100mm over the final size, then carefully joint and thickness all the timbers to size. Mark what each part is going to be on its end so you don't mix up what goes where. Beech cleans up beautiful but quickly fills an extractor bag

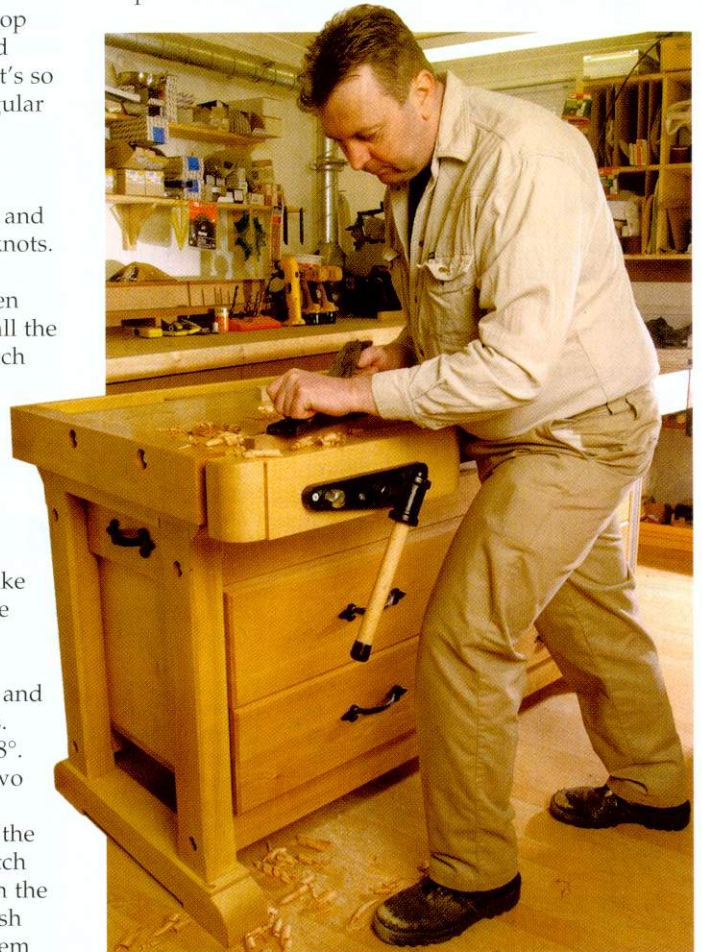
Pick two 1545x112x66mm lengths for the dog hole strip and put them to one side. Make up two jigs for routing out the dog holes. I needed two, one right hand slope and one left hand slope for the main slab, and one for the tail vice dog holes. My dog holes are angled at 88°.

The jigs are simple. Cut two bits of 12mm MDF to 250x250mm then cut them in the middle at 88°. Cut a 7mm notch on one side 60mm down from the top to allow the dog to sit flush into the bench. I separated them

by the size of the dog plus 6mm for collar and guide bush then nailed a strip of MDF to the top of the jig.

Lay out the spacing where the dogs will be positioned. Set out the front dovetail to 35mm, then allow a 50mm space then mark the first dog hole then 95mm between the rest. I required 12 on the main slab. Cut a sample to check the depth and width of cut first.

If you're very tall or short you may need to adjust the height of your bench to suit



05 Use your template to rout the dog holes in the rear half of the two dog bench pieces



06 These two sections are then biscuitted together for strength and to align the top edges perfectly



07 Make sure that the end face of the assembly is perfectly square and aligned, apart from the dovetail



08 Use biscuits to reinforce and align the other sections for the main top assembly. Glue up and trim to length

PROJECT GUIDE
Difficulty
 Intermediate
Time
 60
Type
 Joinery

2 Once all the dog holes are routed turn your attention to the front dovetail and front end cap. I cut large single dovetails here, 35mm long at a 10° angle. First cut its thickness down to 25mm then cut away the rest by hand. I used a straight cutter in the router to remove the waste in the end cap, then cleaned out with a chisel until I got a good fit.

Now align the 2nd part of the dog hole strip flush with the dovetail end and mark for No 20 biscuits. Cut a double row along the length between each dog hole. Clean out any sawdust left from the biscuit cuts and use plenty of glue. I used Titebond premium and nearly every clamp I had.

Once clamped, clean off any excess glue and leave to dry.

3 My main worktop width, excluding the tool tray, finished up at 534mm. I used four pieces of beech, three at 60mm thick for the centre and the fourth at 30x112mm for the end piece. Rout a 12mm slot, 10mm up from the bottom edge of this, to accept the tool tray base.

I am fortunate to have a 15in thicknesser so when I laid out my centre boards I made sure they were under this so I could machine it to make the flattening process easier. The three sections are double-row biscuited and glued then clamped and left to set. I then gave them a light pass under the thicknesser. Square off both ends and cut using a straight edge guide and a circular saw.

Next make up a couple of blocks to 52mm thick 280mm long and temporarily screw them to the underside. These allow the thinner centre section to sit at the same height as the dog hole strip and the tool tray edge. Mark again for biscuits and make double-row cuts then glue and clamp. Make sure at this point that all the boards sit dead level and square at the front of the dog hole strip where the dovetail goes. Clean off any excess glue and leave to dry.

4 The front and rear end caps (breadboard ends) are not glued, but only have a bit in where the dovetail goes. The rest rely only on the bolts and a ½in plywood spline, to allow for expansion. I used my rebate cutter in the router to rout the slot for this as it was a perfect fit for the ply. Stop short at each side, then drill the end caps where the bolts are going. Counterbore with a 25mm Forstner bit first, then drill the rest of the way with an 8mm bit. Before fitting the end cap treat all the end grain with an end

grain preserver to help stop the top from splitting.

Fit both end caps and drill for 80mm rag screws and bolt in place. This is only temporary as you still have to cut the dovetails for the tool tray side.

5 Prepare a bit of beech for the back of the tool tray to 2005x112x20mm and mark for dovetails. I had to be careful here because the 12mm slot for the plywood base just caught the bottom edge of the dovetail so I had to leave a little notch to hide this. Cut then offer it up to the bench end caps and mark it. Remove the end caps and cut out the waste for the dovetails, reinstall, then check for a fit. A dovetail fit should be a comfortable fit not too tight not too slack.

Once happy cut the slot at the router table then cut the plywood base to 1935x160x12mm. Slide the base into position and fit the edge into the dovetail housings. I used some glue only at the dovetails again. This doesn't leave any margin for error so be fussy when you are marking and cutting.

For the shaving ramps cut two pieces of 12mm birch ply to 220x150mm and bevel them at sharp tapers so the edges sit tight onto the tool tray base. These are not fixed, just a good tight fit.

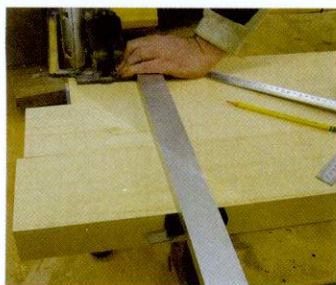
6 The front vice was a bit more tricky than I first thought. I could have mounted it onto the bottom and made up a fascia but I was worried that it would tip backwards when I tightened a job in it. I decided to mount it at the halfway mark, which meant a lot of waste to cut away. I used the router fitted with an 18mm straight cutter and an edge guide, using the front face as my straight edge, I slowly nibbled it away until I reached the correct depth

CUTTING LIST

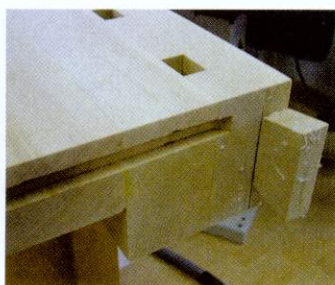
Part	Qty	Mats	Length	Width	Thkns
A Dog hole strip	2	Beech	1560mm	112mm	66mm
B Top slab	3	Beech	2035mm	125mm	60mm
C Top slab inside tray	1	Beech	2035mm	112mm	40mm
D Top slab outer tray	1	Beech	2035mm	112mm	20mm
E End cap	1	Beech	704mm	112mm	55mm
F End cap	1	Beech	572mm	112mm	55mm
G Tool tray	1	Plywood	2035mm	165mm	12mm
H Base frame feet	2	Beech	700mm	90mm	75mm
I Base frame top rails	2	Beech	630mm	65mm	60mm
J Base frame legs	4	Beech	700mm	95mm	65mm
K Base stretchers	4	Beech	1400mm	85mm	30mm
L Tool tray ramps	1	Plywood	220mm	150mm	12mm
M Tail vice	2	Beech	587mm	66mm	112mm
N Tail vice	2	Beech	312mm	60mm	112mm
O Tail vice	1	Beech	580mm	66mm	25mm
P Front vice	1	Beech	525mm	120mm	80mm
Drawer housing					
Q Carcase sides	3	Ply	409mm	525mm	18mm
R Carcase top & bot	2	Ply	1355mm	525mm	18mm
S Carcase back	1	Ply			
T Large drawer sides	4	Ply	505mm	195mm	12mm
U Large drawer back	2	Ply	610mm	195mm	12mm
V Large drawer front	2	Ply	610mm	195mm	18mm
W Large false fronts	2	Beech	638mm	215mm	38mm
X Small drawer sides	6	Ply	505mm	125mm	12mm
Y Small drawer back	3	Ply	610mm	125mm	12mm
Z Small drawer front	3	Ply	610mm	125mm	18mm
AA Small false fronts	2	Beech	638mm	145mm	38mm
BB Small false fronts	1	Beech	638mm	140mm	38mm
CC ODrawer bottoms	5	Ply	484mm	600	6mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

Making the bench top



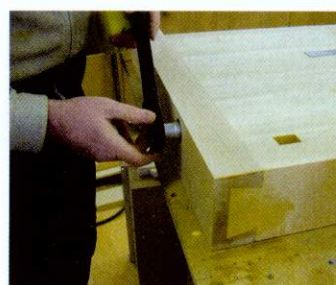
09 A circular saw is just the tool for cutting the ends square if run against a guide. You don't need a radial arm!



10 Rout matching grooves in the ends of the bench top section and the breadboard for a loose tongue



11 The rear rail is grooved to take the tool well bottom ply and dovetailed to fit the breadboard ends



12 Only the front dovetail is glued at assembly. Counterbored bolts hold the rest of the rails in place

Remember to avoid your dog holes when fitting the vice. Drill the holes for inserting the thread and its guide bars, then fit the vice body to the underside of the top using six 8x25mm lag screws.

The actual wooden vice face is straight forward, and measures 525x120x80mm. Round the corners to match the feet and tail vice. The face block is attached to the vice body with three No 14 x 1½in Philips head screws. Remove the bench screw and guide rods and front face at this point. Final fitting is done nearer the end of the project.

The Leg Frame

I've seen other good benches where the top was beautiful but the base totally out of proportion. I wanted mine to look as if it was made for it not an afterthought so I again used beech. The frame is morticed and tenoned, with the stretchers bolted into place to allow for dis-assembly.

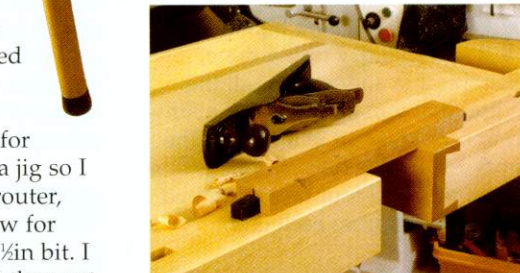
7 Start with the bottom cross members and size them to 700x90x75mm. The uprights are 95x75mm and the top supports and stretchers 1405x85x30mm.

Mark out the two bottom supports for a 50mm radius on the front and rear faces. I crosscut a 10mm depth first then took my 50mm radius from that. I cut this at the bandsaw then dressed it at the belt sander to remove any bandsaw marks.

Next cut four blocks for the feet to 15x90x180mm. These are glued and screwed onto the underside of the base cross members and dressed to blend in.

8 Lay out the mortices for the uprights. I made a jig so I could cut these with the router, just a basic simple window for use with a ¾in collar and ½in bit. I cut them 30mm deep and then cut the tenons on the upright legs to suit at the bandsaw. Make sure when cutting the uprights that they are all exactly the same length, including the tenons. Use a stop block at the bandsaw if required. Rout a slot in the left hand front leg for a T channel, for holding a sliding support when cutting long pieces at the front vice.

The tail vice has a multitude of uses in woodworking



9 The top cross members are 630x65x60mm. Trim the bottom edges off at 45° and then cut a simple full width dado at 20mm deep to suit the uprights. I did this at my radial arm saw, just nibbling away, then cleaned out with a chisel.

A set of dog holes down the length of the bench allow timbers of all lengths to be held between dogs on the bench and the tail vice

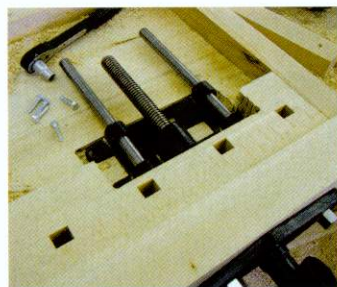
10 The mortices for the cross stretchers were also done with my router but I just used the machine's own guide rail for this. I cut mine 18mm wide, 25mm deep and 70mm long. Once the mortices are cut mark off for the bolt holes and countersink with a 30mm Forstner bit then drill with an 8.5mm hole. Drill the holes in the centre of the mortice. Cut the tenons to suit the mortice. Again, be accurate with the lengths, use a stop block if you think you might overrun.

Once cut dry fit them into the uprights, then drill an 8.5mm hole through from the upright into the stretchers as deep as the drill bit

Filling your bench drawers with heavy tools will help increase the rigidity of the structure in use



13 The main vice is from Axminster though you could order one from Germany too if you prefer



14 Follow the instructions included for fitting the vice. You'll need to recess it into the thicker dog hole section



15 A simple aperture template jig is all I needed to rout the mortices in the foot rails for the legs



16 Bandsaw the tenons to fit. Make sure you have a perfect fit because you don't want the bench racking in use

will allow. I had to remove the stretcher to allow me to get the full depth. Use eight 150mm long 8mm bolts. Check the depths to make sure you will meet where the bolt comes through before drilling the side of the stretchers. Remember to include the depth of the countersink. Once measured drill a 30mm hole in the side of the stretcher to allow you to fit on the nut and washer.

11 With all the base bits made and trial dry fitting done, disassemble and go over all the edges that will be seen with a 1/8in rounding-over bit in a router. The uprights have a deep stopped chamfer on all four faces, stopped about 25mm from each end.

The end drawer simply runs between the two legs



To assemble put glue in the base mortices and the top dados then clamp them together, adjusting any out-of-square at this point, then set aside and leave to dry. Go over with the sander, cleaning up any bits you can't get at once fully assembled.

Now is the tricky task of entering all four stretchers, not easy if you are working alone, I had to succumb here and enlist the help from my son. Once they are all entered, insert the bolts and nuts and draw up tight together. Check that it's all sitting nice and square and adjust if necessary

12 For the drawer housing I used 18mm cabinet grade plywood. Cut a top and bottom to 1355x525mm, and the sides to 409x525mm. Cut a 6mm slot 6mm deep on all four pieces for the back. The centre section is two 12mm pieces glued and screwed together. No fancy joints here, just straight forward butt joints glued and screwed with the centre section butted up against the back. Cut some 18x6mm beech for facing off the ply, glued and brad nailed into position.

To fit the housing between the stretchers, turn the assembly onto its back and carefully insert it. Turn back on its feet and position flush with the front stretcher. Put four screws through the housing into the stretcher to hold in place.

13 I made up six drawers in total, five for the housing and one for the end of the bench. The housing is split in two halves, three drawers one side and two the other. The make-up for all the drawers is the same, just different sizes – just follow the drawings and cutting list for sizes and

Secure and accurate mounting of your front vice is necessary if it's to work properly and not rack in use

assembly. These are all done with half blind dovetails.

The finished drawers run on 500mm full-extension drawer glides from Screwfix. Once the drawers are made, position the glides by cutting two bits of wood to identical length and sitting the slide on top with the front edge flush with the front. Check the drawings for glide positions.

The drawers actually sit flush with the housing and I made up some beech fronts, I didn't have enough beech to make up the fronts on their own so I glued up two full height and drawer width panels then cut them to suit. I also went round them with a deep chamfer.

Position the drawer fronts then brad nail them on to hold their position; mark where the handles are going and put the brads where they will be hidden. This allows for good alignment. Once they are all positioned remove the drawers and screw them from the inside. Same procedure is followed for the drawer at the end of the bench, except the drawer runners sit flat attached to the underside of the drawer. I temporarily affixed the handles here but removed them when I was putting on the finish.

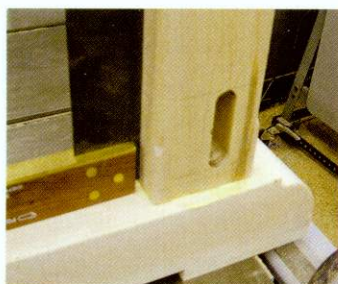
14 Once the base is complete measure out its position on the underside of the workbench. I had to make up some supports to fill the void where the narrower centre is to the deep front and rear faces, because I wanted full width support and somewhere to screw the lag bolts into. The top slab is heavy so get help when lifting onto the base frame. Position the top onto your marks then drill a pilot hole and insert the four lag screws, two either side, to hold the top in place

Getting the top flat wasn't too bad as I had been careful to size sections of my top to fit my

Assembly and drawer housing



17 Counterbore then through drill the legs for the bolts that secure the long rails. Ensure you drill the right faces



18 Check for square as you assemble the legs. The long rails are dry-tenoned as well as bolted into the legs



19 Once the underframe is assembled measure up for the drawer housing. This rests on the bottom stretchers



20 The gap at the top between the legs is perfect for adding an end drawer that sits on top of the housing

Making the tail vice

The tail vice hardware came from Germany. It arrived less than a week from ordering but came without instructions, although there are good instructions on their website (www.fine-tools.com). The construction is a lot easier and more straightforward than what I initially thought it might be. The vice comes with three main parts, the base for attaching to the bench, the vice screw and the body that attaches to the actual tail vice assembly.

15 Start with the base. Clamp this into position then use an adjustable square to make sure it sits dead level throughout its length, and attach it with five No 14 x 1½in screws. The 6th screw was supplied with the tail vice, and is an Allen screw tapped to the inside of a bolt. This goes in the bottom left hand corner of the base, and is different to the others because the screws could possibly slacken under heavy use – the cap screw won't.

16 I carried the theme of single large dovetails on to the tail vice. These were cut at the bandsaw and the sockets were routed out then cleaned out by chisel. The dog leg side of the tail vice is a full depth dovetail for increased strength. I also put in a 50mm radius to keep it similar with the front vice and feet. My tail vice has a 300mm dog leg and three dog holes, done in the opposite direction to the main bench, hence the need for making two jigs at the start of the project.

17 The tail vice necessitates a few cuts with the router to accept the body. Study my drawings closely before embarking on this part of the project.

Insert the front vice back into position and do a final installation of the screws. With all the parts now installed go round the whole top with an ⅛in radius round-over bit. Close the front and tail vices when doing so, so that their faces remain tight.

thicknesser and was careful when aligning at the clamping stage. I did have some uneven bits though which I flattened out with a No 7 jointer plane. Check the top for flatness with a steel rule and feeler gauge. Then run over it with an orbital sander, going from 80 down to 400 grit.

18 For the finish I used Rustin's Danish oil, put on thickly by brush. Let it sit for 5-10 mins then wipe off with a clean

rag. I have put on three coats so far but will be putting more on. It's an easily renewable finish so is perfect for workbench tops which are subjected to a lot of wear and scratching.

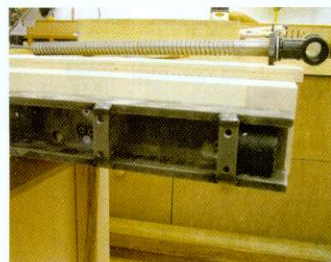
Finally, install the drawer handles and finish any minor jobs left.

NEXT MONTH

Learn how to make an entire library unit for one or more walls to hold all your favourite books



25 Refer to the instructions at the manufacturer's website for detailed info on fitting this vice



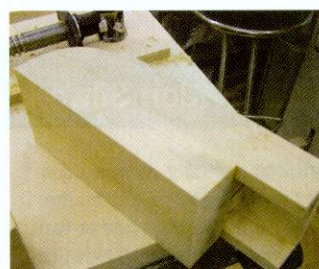
26 The mechanism is a two part one and attaches to both the bench and the vice



27 The main vice assembly is similar to the bench ends, with heavy dovetails joining the timber sections



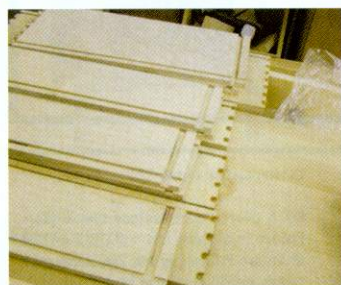
28 The vice body also has a series of dog holes in it so is laminated in the same manner as for the bench top



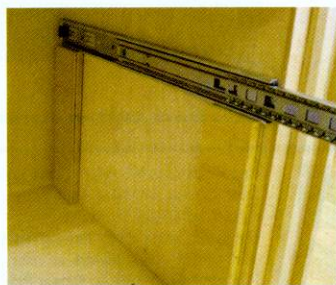
29 The end jaw is built up of two sections but only one has the dovetail socket cut into it



30 Make sure that the vice assembly is perfectly square before you glue it up or it won't run properly



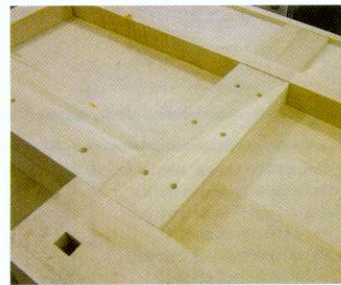
21 The drawers vary in depth but are the same width. I dovetailed the front joints but you could biscuit them if you wish



22 Heavy duty full extension runners allow drawers to be pulled out completely. Line them up with spacers



23 The drawer housing finishes flush at front and back with the main stretchers and simply rests between them



24 The ends of the top requires extra battening to level off the underside where it sits on the leg rails

Letters

Something to get off your chest about the world of woodworking? Write to us at Good Woodworking Letters, 30 Monmouth Street, Bath BA1 2BW

Inverted top

Can you explain to me why, in your article on making kitchen worktop joints (GW 148), you say that one of the worktop sections has to be inverted for one of the joints. I have only done one kitchen recently with a template, and it was very good even though I kept the top normal for both joints. I would have thought it would be tricky to get a clean cut when inverted. I have been asked to do the worktops by my sister in law and am thinking of buying a template from Henderson Plastics as detailed in your article.

Alan King, West Yorks

The second worktop is inverted in order to prevent the router cutter

from causing break out on the leading edge of the postformed edge. The cutter should always be rotating into the board to give a clean cut, so you must always invert one board of the two to allow this. Which one depends on whether you are making a left or right handed joint, depending on the layout of your kitchen. PM

Top job jig

What Andy King forgot to mention in his article about kitchen worktops was how good the service is from Henderson Plastics. I phoned in my order for a jig Monday morning and it arrived today Wednesday. The work tops are fitted and the Fish

Protection Officer (wife) is delighted with her new kitchen. More techniques like this please.

Bill Martin, Edinburgh

Fish Protection Officer?? PM

Large routers

I've just read your power tool guide on routers (GW 148) and felt compelled to write because I think you've missed a very important aspect of big routers – the size of the aperture in the base.

When I was looking for a big router I needed both a large hole in the bottom and variable speed because I wanted to put a 75mm cutter through the base to make raised and fielded panels. There

were only two on the market at the time which fitted the bill, the Trend T9 which had a 75mm hole in the base, and the biggest Porter Cable, which had a massive 90mm hole in the base. As I'm sure you are aware, the variable speed is required to slow the cutter's outer edge down so that it won't shatter on contact with the work piece. With these features you then end up with effectively a small spindle moulding machine.

I opted for the T9, partly because, as you pointed out, parts are readily available. And partly because of seeing it demonstrated at a show, where it was run on a table, let go of, and was so smooth

Readers Gallery Jon Silwood, Worcester

I have always had an interest in woodwork but was never able to undertake it as a hobby. All this changed two years ago when I moved into a house with a garage which could be converted into a workshop.

Not having done woodwork since I was at school, I thought I'd start with something small, so I built a timber extension which later became a laundry room. I cut my teeth on simple projects in pine which included a chest of drawers and simple Shaker bedside tables.

With these under my belt, I got more adventurous and made some proper furniture from good quality hardwood. I had a stroke of luck when I found a local timber

yard with a closing down auction. I left proxy bids on six lots on the basis that I would win one or two due to the relative small bids I had left. Much to my horror, I found I had won five of the lots, which upon collection almost half filled a 7.5 ton lorry with mixed oak, ash and iroko, plus a few sheets of mahogany faced ply, but it was a bargain at only £150 for the lot. The bad news was that it was all rough sawn and I had to buy a thicknesser to deal with the timber. Such is life.

With an unlimited supply of timber, I was able to start producing different projects for home and garden, including an iroko 4ft hexagonal garden table,

harbour/cuddle seat, ash & mahogany hifi cabinet and a matching set of ash and mahogany barristers book cases.

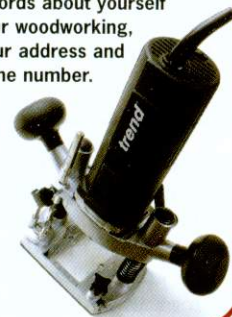
It has taken almost two years to fully kit out the workshop, which is all but done, including a full extraction system. I am currently teaching myself to use Autocad to make the production of designs quicker and easier, and I am also working on a number of projects, including a tall boy chest in reclaimed elm, an oak and ash dining table and chairs, and a modern ash grandfather clock.

I am still learning the tips and tricks of the trade and have many years ahead of me and enough timber to last a lifetime.



WIN a TREND router

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that it stayed put!

Incidentally, my initial purchase was a Dewalt DW625, which I quickly sent back with a lower bearing problem. When the machine was run, even without load, the lower collet nut became so hot that you couldn't touch it! DeWalt did offer to repair the machine, but since I hadn't even used it at this stage, I didn't want it back.

I've used the T9 for a couple of years and found it reliable for kitchen worktop joints, stair housing and inverted for raised and fielded panel work. The fine height adjustment, variable speed and general build quality make it a sure winner. In my view, its only shortcoming is the switch, which has to be held on with a cap for table work. A simple traditional on or off switch would be far better.

Sadly, we can't all fit a spindle into our workshops, but a router table hung on the wall and dropped into a Workmate when needed can work wonders!

Andy Partington, Somerset

Rate for the job

Having recently discovered GW I write for the first time – although tongue in (groove) cheek.

GW 148 p. 30: 20:20 vision is normal unaided vision, 20:15 is better, but an RAF fighter pilot is required to have 20:10 vision!

GW 149 p. 98: I can only sympathise but I remember my grandfather's explanation to customers regarding price: He would tell the tale of the boiler repairman who charged 20 shillings (£1) to repair the boiler. The client balked at the price and was asked for a breakdown of costs. He replied: 6d (2.5p) for doing it, 19/6d for knowing how to do it!

Chris Lack, London

The is fine but still nobody wants to pay it in my experience. My point was that people will (begudgingly) shell out for the plumber or electrician but not for the chippy! AK

Batteries down under

I was very interested in the letter from Bob Holden (GW 145) about expensive cordless drill batteries. I have a Makita model 6204DWAC which uses the same battery type, 192019-4, and is an excellent little drill for light work

Letter of the Month

In association with

trend

WIN a TREND router

Overcoming disability

After seven years as a draughtsman, then 26 in teaching – initially as a woodwork teacher then as Head of Technology teaching mainly graphics – I retired and became a gardener. During this time one or two customers asked me to remove smaller trees from their gardens. Still having my initial love of working in wood, I determined not to waste lovely timber such as cherry, laburnum, etc, so I dried and stored them away 'for when I've got time'.

Then I decided to convert my garage into a workshop after being re-inspired by the boxes of Andrew Crawford and Peter Lloyd. It was all slotting into place ready for my retirement in September 2002. Then, guess what – I had a stroke in June 2002.

After seven weeks in hospital I began regular physiotherapy. The stroke was on my working side. Naturally, I had to rethink plans, so I set myself some targets. 'Don't do that' I was told. 'You'll be disappointed and lose heart'.

Firstly, I had to relearn to walk. This I did after a few months, and the first target (woodwork-wise) was to get back into my unfinished workshop. I did this, thanks to my wife, who acted as a second crutch, in spring 2003.

I'll not bore you with details of successes and failures, but a year later I'm progressing. I've panelled one end of the garage and put up shelves and racks, but the beech for the new bench lies gathering dust. The main things that I've learned could be helpful to some readers, and remind me of the things I tried to teach to pupils years ago. Now, in my clumsy moving around my workshop, and having only one good hand, these things have become more important than ever. Keep the place tidy, especially the floor, put things back in their place then you don't waste time looking for them, measure twice and cut once, plan extra carefully and think things through before starting.

The most important thing I have to do is think of different or new ways of doing things and planning jigs to help me. I hope to invest in machinery to facilitate progress. I have a drill press, but am planning on a small bandsaw and sanding station and possibly a router table, all of which could be used one handed. Perhaps readers might offer advice. The most exciting prospect is that I am to have Botox injections in my right wrist to help remove tightness. I could end up having the sexiest

The Letter of the Month wins its author a Trend T3 variable-speed router, plus a box of cutters. For details of Trend tools and stockists ☎ 0800 487363 www.trendmachinery.co.uk



right wrist in the North West!

I am told there is a web-site for one handed woodworkers but, if any readers have advice or book titles, such help could prove invaluable to me and any other woodworkers with manual limitations. It's good to see that GW occasionally shows articles for making jigs etc, but maybe there is also a call for the once-in-a-while page devoted to special needs such as mine. Who knows? I may yet be able to send you a photo of something I've produced... watch this space.

PS. I've still got the cherry and the laburnum, and then there's that teak and those few bits of rosewood and.....

John Savage, Cumbria

Old Wives' Tales Considered by Jeff Gorman

Stand Well to The Side of The Saw

The idea is that you keep out of the way of a kickback. To reduce the risk of twisting the workpiece, a push stick should apply its force as near in line with the blade as possible. If you stand too far to one side, it will be difficult to do this properly. I guess that most of the worry about kickback comes from people who do not fit a riving knife and blade guard.

only. It's now about 2 years old and the batteries are both working well. Incidentally, I enquired about a new cordless drill battery price from a power drill shop and the price was NZ\$115.

However, here in Auckland there is a firm called Battery Masta which repair cordless drill

exhausted batteries by using Japanese Sanyo cells, which they repack the old battery with, and they claim an increase of 1.4 – 2.0 amps capacity on the 9.6V Nicad battery. This conversion including freight is about NZ\$91 (guarantee is six months). On 14.4V – 18V type batteries cost is about

NZ\$135 including freight, two-thirds the cost of a new battery.

I had a similar problem on a 14.4V DeWalt cordless drill (an impact version with 1.75A batteries) and I thought both batteries had packed up. I had these professionally discharged and checked and they found that the charger was faulty. In the meantime I purchased a 14.4V Hitachi drill which has good power with 2A batteries, but the chuck is not as good as the metal chuck as on the DeWalt. (Incidentally DeWalt batteries seem cheaper than other brands).

So my advice is not to rush to buy new batteries until the charger is checked as well.

Richard Sharland, Auckland

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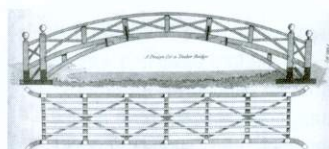


NetWorks

There's all manner of useful information to be found on the Internet for the woodworker. We help separate the screws from the sawdust

Bridge the gap

For the student of design, there's interesting material in the University of Wisconsin's Digital Library for the Decorative Arts and Material Culture (<http://digital.library.wisc.edu/1711.dl/DLDecArts>). I found this



bridge drawing under the heading Pain, William, *The Practical House Carpenter, or, Youth's instructor*. You might also select Chippendale, Thomas, *The Gentleman and Cabinetmaker's Director*. A Hepplewhite and Co *The cabinet-maker and upholsterer's guide*. (1794-1897). For rather more modern material, a favourite of some American woodworkers, look up: Stickley, Gustav, 1858-1942. *Craftsman homes*.

Walk the plank

The introduction to Walk The Plank (www.walktheplank.dk) declares that 'We believe that both designers and craftsmen in this country (Denmark) have the courage to further our trade. Every year new talents emerge,



ready for the scene, but it is narrow and allows little space. Only the few are able to become visible. Therefore, really good ideas are seldom seen here. Very often because they don't come off the drawing board. We hope and believe that Walk the Plank will help to ensure that far fewer good ideas are lost'. The site includes interesting and sometimes provocative photographs.

Bamboo fly rods

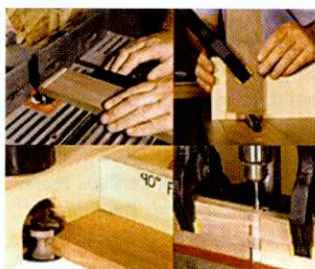
At www.thomaspenrose.com/tonkin.htm readers who fancy owning or using some of their woodworking tools to make a split cane fly rod, might more readily understand the reasons for the cost of such rods, or have a forewarning of what could be involved in tackling such a task. I once found great satisfaction in learning to sail a small dinghy that I made, and can empathise with the woodworkers who catch a monster on a rod made entirely by themselves. The quality of the photography is matched by equally clear exposition. Other fishing rod references:



www.goldenwitch.com/http://globalflyfisher.com/rodbuilding/bamboo1/index.php

Make a hinge joint

These hinge joints are usually fitted to the frieze rails of Pembroke fall-top tables and can be demanding to make by hand. Given the correct cutters and an accurately set-up router table, some of the uncertainty might be taken out. The photo of the drilling operation is not very clear, but to get accurate hole alignment, it would be advantageous to support the workpiece against a right-angled angle block. For text & photos, go



to www.dewalt.com/us/articles/printable.asp?ArticleID=3.

Signposts

- Answers to glue questions: www.newwoodworker.com/useglue.html
- Everything you ever wanted to know measurement conversions:

<http://onlineconversion.com/>
 ● A Furniture Glossary: <http://www.noteaccess.com/APP/ROACHES/DecorativeAA/FGlossary.htm>

Gleanings from the Net

Harvested by Jeff Gorman

From a 'Thread' - Using Plans

● I rarely use plans, not because I don't like to, it just happens that most of my projects have to fit an existing concept and there are none available. But I always make sketches and drawings of the project and, toward the end of the process, I use a cut list program as much to run through the thought process as to get the program's output. Working without plans, and having to solve problems can be a rewarding experience and often ends up as the principal source of the satisfaction you get from this passion. As far as wasting wood, making a prototype out of cheaper wood/MDF is one of the accepted

ways to tweak an untested design.

● I enjoy doing my own design work. I make simple drawings using a simple drawing application. I never follow someone else's plans. I think that would be like having a backseat driver. You know... "Turn here! Stop! Now go! Too fast! Slow down! Right! Go straight ahead! Turn right! Watch the curve!" My first woodworking project was a simple corner shelf from a peach crate; it was my own plan after having looked at several others. My mother loved it. That was 50 years ago and to date I have always used my own designs, although I certainly copy ideas and concepts into what I am

doing. There is a great deal of personal satisfaction in knowing yours is unique and not just another of Norm's look-alikes.

● I usually take the best parts of several items and morph them into what I want. I only copy the basic design elements. I'll make a rough sketch of the overall dimensions and then wing it. I've made many errors in the past, but not usually noticeable to anyone else but myself. I don't really waste wood, but sometimes my scrap pile may have a couple of shorter pieces instead of a long one. Matter of perception! I have bought plans but never built any. Something about creativity being lost by following someone else's ideas to the letter.

Safety

Louis Michaud: I had been warned about forearm baldness

pattern resulting from testing chisel and plane iron sharpness. But nobody ever told me anything about the Saw Sharpener's Forehead Puncture Pattern! I would have appreciated a little warning. It's very easy to get the SSFHP: when almost finished sharpening a saw, drop the file on the floor. You are not concentrating on what you are doing, probably thinking of how sweet that sexy handle will feel in your hand while sawing some nice figured birch. Don't think, don't look, just bend over to pick up the file. Then freeze right there! You've just sunk a nice row of sharp saw teeth on your forehead. Not too deep as to hit bone and give a continuous line, just deep enough to have a nice puncture pattern. It's important not to have any lateral movements or jerks that would spoil the pattern.

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Ryobi ERO-2412V Random Orbit Sander

£61.10 ☎ 01491 848700

www.ryobitools.com

Motor: 240W **Speeds:**

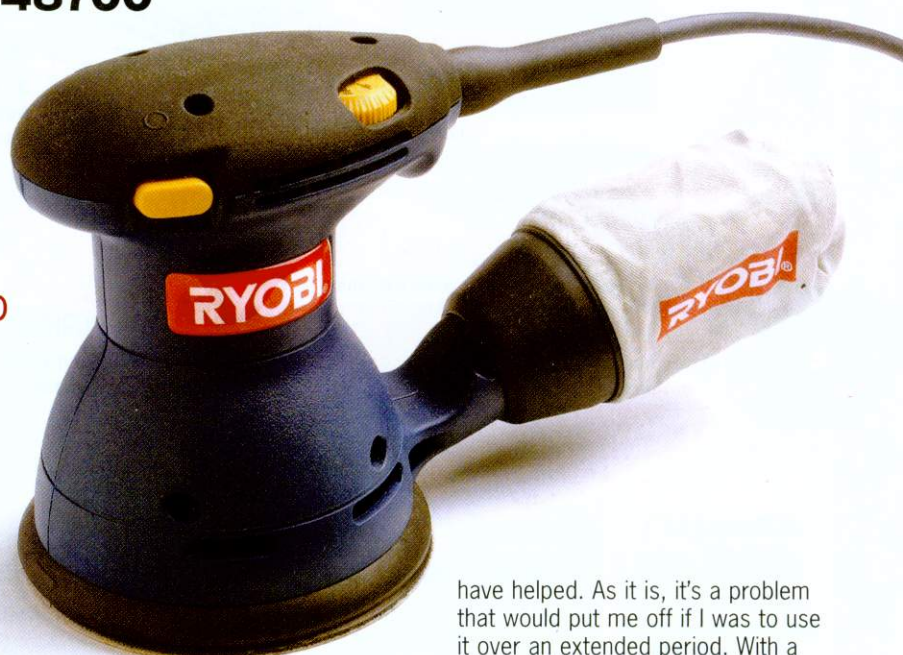
7000 to 12,000opm

Orbits: 2.4mm

Weight: 1.6kg **Pad size:**

125mm dia

Typical street price: £40



Sanding needs to be a comfortable operation if you are going to persevere and get a good finish, so tool ergonomics play a big part. Ryobi's new palm grip random orbit machine appears to succeed with its teardrop-shaped top grip. This has a rubberised texture for greater comfort, as does the rest of the body.

This grip also houses the variable speed dial and on/off button. The dial was pretty stiff and its position at the rear means it isn't easy to adjust as you sand. The control button is better though. It works in the same way as a forward/reverse on a battery drill, running through the handle.

I found the on/off orientation a bit confusing, with a simple I/O marking on top of the grip which is pretty difficult to see.

The body of the sander is bell shaped which enables you to hold it around the neck, below the normal top grip. This can be a benefit when sanding curved or irregular shapes or when you need closer control.

The 125mm base takes hook and loop abrasives (three discs supplied) and has a circular configuration of eight holes to pull the dust away.

A small cloth bag is supplied which pushes snugly over the 35mm round dust port. Dealing with dust

generated from sanding MDF is a good indication of efficiency, and the bag seemed to trap most of it. Even so, cloth bags won't trap the finer particles you can't see, so a dust mask could be advisable over extended periods.

The Ryobi is disappointing because of its vibration transfer. It should run at its smoothest at fast speeds, as this doesn't allow the grit to grab so readily. Even flat out vibration was noticeable, and after a few minutes sanding I had a tingling sensation in my hand. It also managed to shake the dustbag loose. I had to force it in really tightly to prevent this. This is a pity as it actually sands pretty well, leaving a glassy finish on oak and cherry.

This tool has a nice comfortable feel and sands well enough. I could live with the vibration transfer on smaller sanding jobs, and had the top been a softer rubber this may

have helped. As it is, it's a problem that would put me off if I was to use it over an extended period. With a selling price of £39.99 the Chinese-made Ryobi should gain a few supporters in the mid range of the budget market, though.



The small fabric dustbag simply pushes on to the extraction port

What the performance ratings mean



Superb. Can't be faulted



Excellent performance



Good, but not the best



Scope for improvement



Don't bother

GW verdict

- Comfortable grip, variable speed
- Vibration is a problem

Value for money
Performance



Metabo KSE68 Plus Saw

£316.07 ☎ **02380 732000**

www.metabo.co.uk

Motor: 1600W

Speed: 2000 to 4800rpm

Blade: 190mm **Weight:** 6.0kg

Capacities: 67mm @ 90°,
54mm @ 45°

Typical street price: £210

The circular saw has long been a stalwart of the building site, most of its life spent working in a first fix environment. Despite this, it can be a very accurate tool for converting both sheet materials and solid stock.

The Metabo KSE68 Plus is best described as a cross between a rugged workhorse and a finer dimensioning saw. It has the build quality to take site knocks, with a well built ABS-type plastic motor casing, alloy upper and steel lower blade guarding. There's a thick pressed steel sole plate for day in, day out heavy duty work.

Although I prefer an alloy base for accuracy on a circular saw, the Metabo has several features that sell it to me.

A pressed steel base against a guide batten isn't necessarily going to be accurate, as it can be difficult to hold the centre of the batten in place, especially on a board with a finished face, where you can't drive a temporary fixing to hold

it. So the groove within the base, which can be used in conjunction with an optional guide plate, makes this more controllable. For freehand cutting the red plastic cursor on the front can be adjusted for either side of the kerf or for angled cuts.

Fences on these saws again leave a lot to be desired, so the twin bar long fence supplied here is excellent for precision ripping or trimming. This clamps firmly with two small thumbscrews. A plastic cursor on the front of the base plate can be adjusted to read against the scale on the fence for quick, accurate setting.

Where the Metabo differs from most saws is with the variable-speed motor. This enables you to tackle a wider variety of materials, such as

plastics, as well as timber and sheet material. A dial on the bottom of the motor housing alters the speed, with a range between 2000 and 4800rpm.

Built into the curved handle is a lock-off safety button, depressed before the trigger can be activated. Like the forward/reverse control on most cordless drills, it's easy for left or right handers.

Blade size is 190mm blade (14 tooth, TCT supplied), giving a maximum cutting capacity of 67mm at 90° and 54mm at 45°.

The base has front and rear clamping knobs to hold it firmly

in position, with a graduated scale for specific angles. A lever at the rear sets the depth of cut.

Using this saw with the long fence was a treat. A short fence can run off the end of a board with the blade still in the cut. This can make the cut ragged or inaccurate at the exit point. A long fence eliminates this problem, supporting the saw right the way through the cut until the blade has exited.

Metabo have built in full-wave electronics to keep the speed constant under load, and a braked, soft-start motor to bring it to a standstill in an instant. Even with soft start, which prevents the saw jerking when the trigger is pulled, I think it's too big and heavy for single-handed work. There are more compact machines out there with similar capacities better suited for one-handed use. But for solid performance, this Metabo is a no-nonsense saw with power for deep ripping, as well as accurate trimming and dimensioning.



The longer fence on this saw makes it more accurate for ripping cuts



The inclusion of variable speed is an innovation. A dial is on the housing



A red cursor on the front of the steel base is adjustable to suit the kerf

GW verdict

- ⊕ Variable speed, long fence
- ⊖ Big and heavy

Value for money
Performance



Stanley LeverLock Tape

£7.99 ☎ **0114 276 8888**

www.stanleyworks.com

Tape measures aren't the most exciting tools to look at, or indeed test. As long as they're accurate and blades operate freely, that's sufficient for most people. Stanley however always see the tape as more than functional, constantly coming up with new designs or improvements.

The new LeverLock is one of these. Its curvy plastic case is not too big for a five metre tape, so sits nicely in the palm. It's got a rubberised grip pattern on the back so won't slip out of your hand. There is

also the obligatory belt clip fitted. The blade is the usual yellow with black and red markings, red picking out 100mm and 1ft increments.

The normal front slide lock is now replaced by a pad on the base which can either act as a friction lock to hold the blade out, squeezing it to retract. Squeezing and pushing in the small red button locks the paddle, so the blade can run freely. This is easy to operate, although, personally, I would keep it in the friction mode.



A tape measure isn't going to set the world alight, but the new LeverLock is functional and has a neat variation on the lock.

GW verdict

- ⊕ Neat locking method
- ⊖ Plastic construction

Value for money
Performance



Veritas Spokeshaves

\$65.00 (approx £36 + p&p) ☎ **001 613 596 0350**

www.leevalley.com

They say in Canada that a Mountie always gets his man. But here in Britain, when it comes to getting things (especially high quality hand tools), we always seem to play second fiddle. Fortunately, Lee Valley Tools will ship here, so I get to look at top-notch tools such as these new spokeshaves occasionally.

The basic spokeshave is made from ductile iron, so it should survive a trip to the floor, with cigar-shaped lacquered bubinga handles that sit in your hand perfectly. Small brass ferrules give the finishing touch. The iron body has a 'spattered' rough finish. With all edges eased, and with subtle indents for fingers and thumbs, it feels very comfortable, whether it's pushed or pulled.

Veritas have changed tack on the lever cap, with cast iron instead of the aluminium they favour on their planes. The front of the cap is milled and polished almost to a knife-edge to ensure it seats tightly to the 54mm wide, 3mm thick blade.

The bed of the spokeshave is milled perfectly flat to ensure



the blade beds solidly, minimising any chance of chatter. Standard mass produced spokeshaves suffer from oversized mouths, which, along with thin blades, make it difficult to minimise chatter, especially on internal curves or end grain. Set with minimal blade projection, the aperture here is closed down to about 0.5mm, with two wafer thin plastic shims supplied to close it down further for really fine work.

The blade is adjusted with two brass thumbwheels. These are very responsive, making it easy to fine-tune a cut.

Performance is second to none on any grain orientation, with tissue-thin shavings emerging from the mouth easily. There is also just enough aperture for thicker shavings to pass through without clogging for fast shaping.

Veritas have one further trick up their sleeve. The handles can be unscrewed, and Veritas supply a set of machine screws and ferrules plus a lathe mandrel as optional extras, so you can turn or even carve your own. Do these features warrant the cost, though? These are superb examples of quality hand tools



Veritas spokeshaves come with either a flat or convex sole

for the discerning woodworker. If you consider yourself in that category, then they're worth every penny.

'Tweaking' tools such as these need to be responsive, leave a clean, chatter-free finish and be comfortable to use. Veritas hit the mark on all three counts. Buy one of these and you'll not regret it.

GW verdict

- ⊕ Superb construction, great to use
- ⊖ Shipping and duty puts price up

Value for money
Performance



DeWalt DW433 Belt Sander

£381.88 ☎ **0700 4 339258**

www.dewalt.co.uk

Motor: 800W

Speeds: 260 to 420rpm

Belt size: 533x75mm

Platen: 140x75mm

Weight: 6.25kg

Typical street price: £250

Sanding. Love it or loathe it, it's an essential part of woodworking, so making it easier is always going to win fans. Although capable of finer finishing, when it comes to hogging off material fast, the belt sander is your best bet.

In their new DW433 model, DeWalt have shied away from both the traditional two-wheeled sander, and the usual utilitarian looks associated with these tools. Instead, they've come up with a three-wheeled version with a more curvy body profile. Now, normally when you think 'yellow with three wheels' you associate it with dodgy goods from Del Boy. The DeWalt DW433 certainly doesn't fall into that category though, but is a very nice piece of kit.

But why change a tried and tested, two wheel design for three? Firstly, it enables the machine to be more compact while still retaining a decent platen area. And at 140mm long this is as big as those on some of the 100mm belt models). Also, by having two smaller rollers rather than one large one, the radius at the front is tighter, so you can sand closer into corners. To help achieve this, the handle is vertically mounted on the top of the casing so that it doesn't project beyond the belt. If you prefer a longer sander, there is provision for it to be unscrewed and mounted horizontally at the front of the tool.

Having once inadvertently sanded over a trailing cable, consequently getting it trapped in the rollers, I like the idea of the cable exiting through the top of the handle. Now it can be draped over the shoulder, out of harm's way, or hooked from the workshop ceiling.

The amount of dust

generated usually requires a large cloth bag to capture it. These are fine when empty, but drag as they start to fill, making them more awkward to control. They can also damage a fine surface. The DW433's sanding bag, while not huge and in need of emptying more often, sits over a frame and slides onto an adaptor, so is always supported and doesn't drag. A secondary adaptor is available to convert it for an extractor. A small lever on top of the motor casing closes the dust port if you want to sand an area without using the bag or extraction, thus preventing clouds of dust blowing back.

Belt changeover is very simple. A large alloy turnbuckle type lever lock on the side of the sander releases the tension. This is far easier to operate than some of the very stiff, traditional type levers. The belt is self tracking, although there is a small tracking knob fitted. The lack of projections on the right hand side of the sander allows you to adjust the belt to run it right out to the edge for sanding into corners.

The final feature is the variable speed dial. This is located at the back of the handle and adjusts from 260 to 420rpm, so a wide range of materials can be finished.

The DW433 has excellent balance, runs smoothly and is



The turnbuckle lever lock on the belt drive is easy to operate



Dustbag is well supported but you need an adaptor for an extractor

easy to control. Its heavy duty construction makes it weighty, but the compact design is in its favour. Using the sander in a vertical plane is laborious because of the weight, but standard horizontal work is a cinch. The self tracking works perfectly, even when sanding side-to-side diagonally with a fair bit of pressure, something which normally has belts snaking around the wheels for a pastime.

With a sanding frame that doubles as an inversion stand available, the DeWalt is pretty versatile and should win a lot of fans. It's won me!

GW verdict

- ⊕ Variable speed, self tracking
- ⊖ No extraction adaptor included

Value for money
Performance



Hints & Tips



Pete Martin rifles through your latest hints and tips to help everyone improve their woodworking. This month includes tips for making router fences, cramping, finding centres, dividing a circle and improving a Nobex saw

Dividing a circle

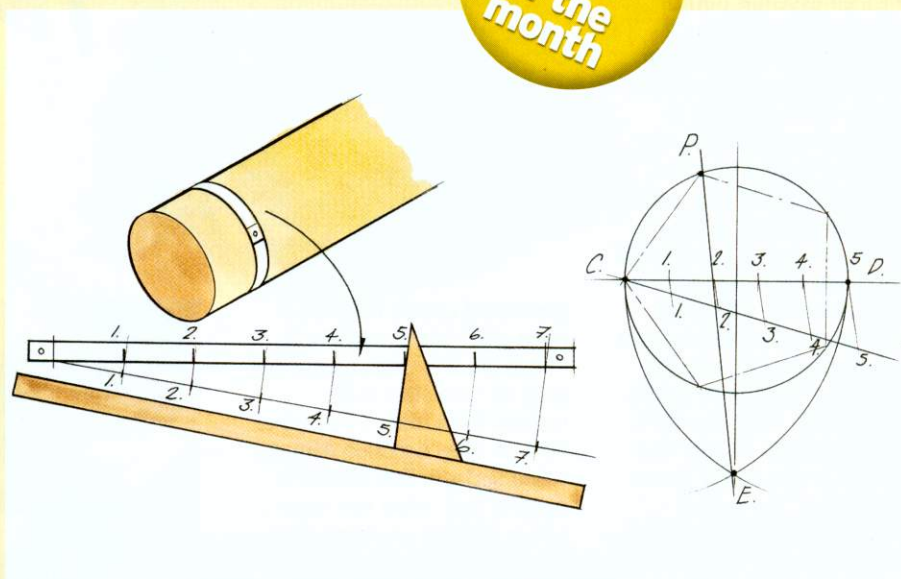
Here are two methods of dividing round work into equal divisions.

❶ Place a strip of paper around the work and mark the overlap to show on both ends. Lay the strip out and pin to a board. Draw a line at a suitable angle to the strip. Divide this line into required number of divisions. For example: Say AB (the circumference) measures 328mm and you want seven divisions, which is an awkward 46.857mm per division. Choose a round figure, say 45mm or 50mm and divide the angled line accordingly using a compass or a rule.

Draw a line from the end marker (7 in this case) to point B. Position a straight edge so that the edge of a square is aligned with this line, then slide the square along transferring divisions from the angled line to the strip. Finally replace the strip around the work and mark off the divisions.

❷ Draw a circle and divide the diameter into the number of divisions required using the method above. If, however, the diameter is an integer it may be possible to do this with just a rule.

Scribe two arcs from C&D to meet at E.



Draw a line from E through Point 2 on the diameter to meet the circumference.

Distance C – P is the required measurement to divide up the rest of the circumference. In this case I made five divisions

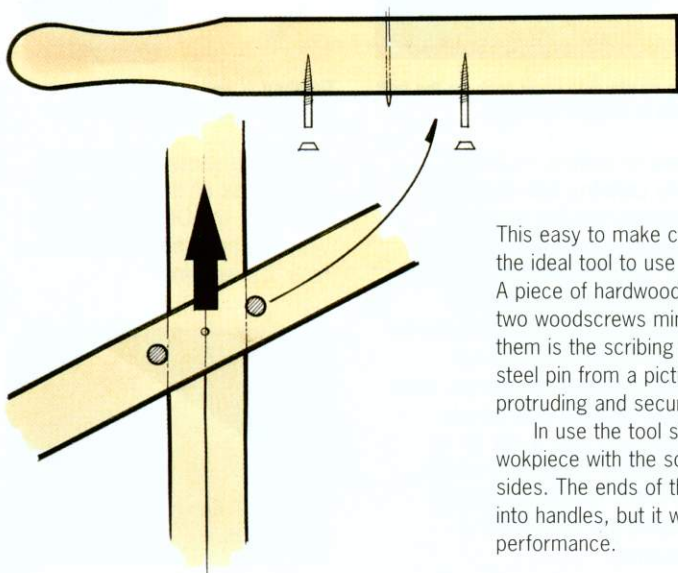
TIP
of the
month

of the diameter from which to produce a pentagon.

NB: The line E-P passes through the 2nd marker in all cases of divisions of three or greater.

Ian Morrison, Leamington Spa

Centre mark



This easy to make centre marking gouge is the ideal tool to use when dowelling.

A piece of hardwood 8x1in sq is fitted with two woodscrews minus the heads. Between them is the scribing pin. (I made a hardwood steel pin from a picture hook). Fit this just protruding and secure with Araldite.

In use the tool sits at an angle on the workpiece with the screws bearing on the sides. The ends of the tool can be shaped into handles, but it won't enhance performance.

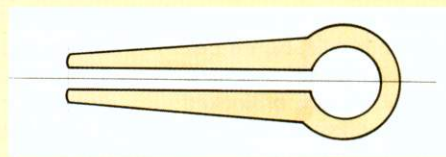
Peter Giolitto, Epsom

Tighten up

The problem of tightening key-less chucks on modern electric drills can be solved by using a pair of wooden pliers!

These are made of plywood and the opening in them should fit loosely over the chuck to be loosened. The pliers are used by gripping the handles tightly and turning in the right direction. A second pair of pliers can be used on the boss behind the chuck which is normally held by the other hand.

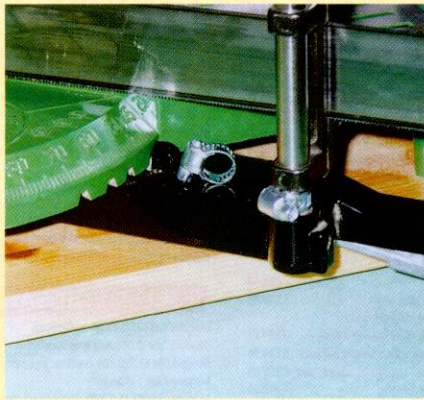
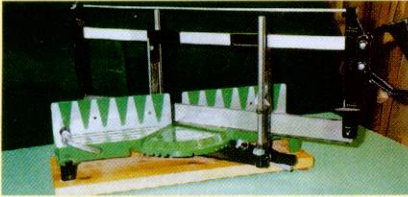
A. Taylor, Norfolk



Jubilee mitres

I've had a Nobex mitre saw for a good few years and find it an excellent tool, except for the difficulty in setting the depth stop. I've overcome this by using two Jubilee clips, one on each pillar. These are much easier set and don't move once tightened.

James Brolly, Powys



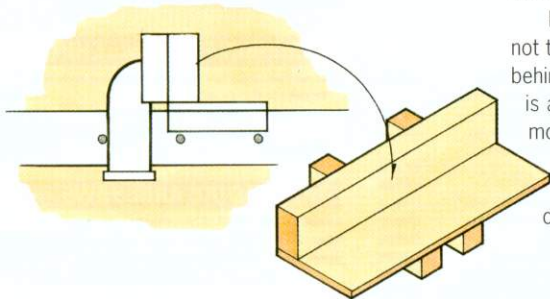
Easier cramping

I became frustrated when trying to fit scrap wood pressure pads against the jaws of bar cramps and finding I didn't have enough hands to get

parts of a job in position when assembling a carcase or framing. I made a set of pads, as shown, that would stay in place as I manipulated cramps and job parts into place.

Pressure is on a softwood pad (soft so as not to mark the wood being pressed) with strips behind to fit against the cramp head. Below this is a piece of 3mm plywood or hardboard with more strips to fit each side of the bar. These pads provide one less problem to think about when putting together an assembly of many parts.

Tom Smithers, Falmouth



Metal rip fence

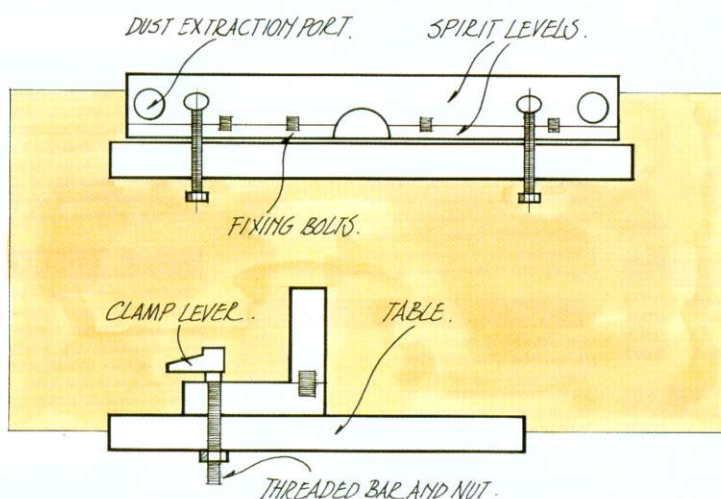
When I built my router table, I wanted a metal rip fence which I could tap and screw to make it easy to fit jigs to. I was horrified at the prices of these from retailers, and in addition the lengths were wrong.

As a cheap and easy solution to this I made my own from two cheap metal spirit levels tapped and bolted together. The removal of the centre spirit level insert is

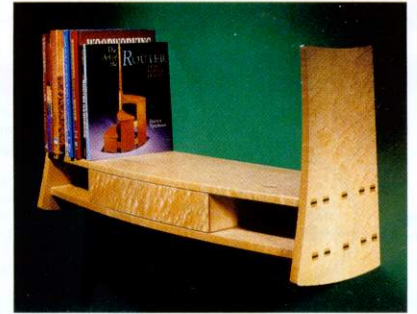
ideal for small bit clearance. Also, if you remove the end level inserts these make an ideal connection for a dual extraction system.

The spirit levels cost £4.99 each. The levels were home made and cost a total of around £12 including bolts and fixing, much cheaper than shop bought fences.

Jon Silwood, Worcester



win a LEIGH JIG!



Stop for a moment.

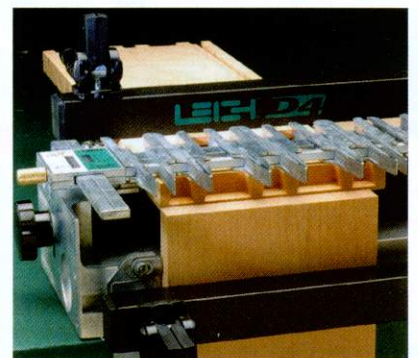
Think a while about your workshop. What clever tips have revolutionised your woodworking, making it easier, safer and more fun?

Perhaps you've picked up hints from other woodworkers or just worked them out yourself. However large or small they are, other readers are bound to benefit from your tips. So send them in to us at *Good Woodworking*, along with simple sketches or photographs if necessary. It's well worth the effort as each month we will award the winner a £35 BriMarc voucher, while each of the runners-up will receive a £25 voucher.

The BriMarc catalogue, which we'll send to the winner and all the runners-up, is jam-packed with great ideas that have been turned into clever woodworking tools. If you would like a BriMarc brochure and details of your nearest stockist just telephone 0845 330 9100.s

Send your ideas to Hints and Tips, *Good Woodworking*, 30 Monmouth Street, Bath BA1 2BW. Don't forget to include relevant sketches and photos.

Tip of the year



In addition to Tip of the Month, we will also award a **Tip of the Year** prize to the best idea published in these pages during the year. The winner will receive a complete Leigh D4 Dovetail Jig worth £375 from BriMarc. This innovative Canadian jig was tested in GW 86 along with nine other dovetail jigs and was highly recommended by editor Phil Davy. It handles material from 3mm to 30mm thick and up to 610mm wide. It's beautifully engineered and simple to adjust.



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Trend T3EK Kit router, srt table, cutters, video	£149.95
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Dewalt DW613 1/4" 800W router	
c/w fine height adjuster	£99.00
Trend T5EK 1/4" 850W with carry case 240v	£149.99
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Makita RP1100c 1/4" 1100W vari-speed	£199.95
Trend T9EK 1/2" 1800W complete with case	£259.00
Dewalt DW625EK 1/2" 2000W 80mm stroke Plus fine height adjuster Free	£239.00
Dewalt DW625EK D&M 600mm Worktop jig & cutter & trend unibase Plus fine height adjuster	£319.00
Dewalt DW626EK 1/2" 2300W complete with case	£279.00
Makita 3612c 1/2" 1850W complete with carry case	£245.00
Freud FT2000E 1900W 1/2" complete with carry case	£179.00
Makita 3707i laminate trimmer with work light	£139.00
Dewalt 631K laminate trimmer with carry case	£159.00
Trend SRT starter router table for 1/4" routers only	£89.95
Trend CRT table c/w fixing plate, spring clamps, horizontal Pressure guard and T30/2T extractor hose	all for only £169.00
NEW Trend PRO Router table with aluminium table	£339.00
Dewalt DE2000 alloy router table with stand	£279.00
NEW Record router table, stand, cast, sliding table	£279.00
Trend CDJ300 300mm dovetail jig c/w cutter & bush	£69.95
Trend Hinge jig for door fitting	£159.95
D&M 600mm kitchen worktop jig c/w 50mm tct cutter	£89.00
D&M 1000mm kitchen worktop jig	£199.00
NEW Trend Worktop Jigs In Stock	

CORDLESS

Dewalt DW927K2 12V drill driver 2 batteries	£105.00
Dewalt DW928K2 14V drill driver 2 batteries plus a 3rd battery	£134.95
Dewalt DW929K2 18V drill driver 2 batteries Free Torch	£177.00
Metabo B5T9.6 9.6V drill driver 2 batteries	£99.00
Metabo B5T12 Impulse 12volt drill driver	Only £99.95!
Metabo B5P12Plus 12volt drill driver 2x2amp batteries	£169.95
Metabo B5P15Plus 15.6volt drill driver 2x2.4amp batteries	£189.95
Metabo B5P18Plus 18volt drill driver 2x2.4amp batteries	£229.95
Metabo 58P18V 18volt combi 2x 2amp batts, 10min charger	£269.00
Makita 6227DWEDE 12V drill driver 3 batteries	£106.00
Makita 6228DWEDE 14V drill driver 3 batteries	£132.00
Dewalt DW984K2 14V combi	£225.00
Dewalt DW988K2 18v combi c/w 3 batteries	£275.00
Dewalt DW988K2H 14V with nickel hydride batteries	£289.00
Makita 8413DWE 12V combi 2x2.6amp ni-mh batts	£209.00
Makita 8433DWE 14V combi 2x2amp ni-cad batts	£199.00
Makita 8433DWE 14V combi 3x2.6amp ni-mh batts	£225.00
Makita 8443DWE 18V combi 3x2amp ni-cad batts	£239.00
Makita 8443DWE 18V combi 3x2.6amp ni-mh batts	£269.00
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Dewalt DW920K 7.2V angle adjustable driver	
c/w 1 battery and 1 extra free!	£89.00
Metabo Powergrip 4.8V screwdriver c/w 2 batteries	£69.95
Dewalt DW966K 14V angle drill c/w 1 batt & 1 free	£199.00
Makita DA31DWE 12V 2X2.6AMP NI-MH BATTs	£229.00

COMBO PACKS

Makita 8443DWEDE 18V combi hammer, circular saw and torch c/w 2x2.6amp ni-mh batteries and case	£429.00
Makita 8443DWEDE 18V combi hammer, jigsaw and torch c/w 2x2.6amp ni-mh batteries and case	£399.00
Metabo KSABT18 18V combi and saw 2x batteries	£369.00
Dewalt DW984K2S 14V combi hammer, trim saw and 2x 2amp batteries	£289.00
Dewalt DW988K2J 18V combi hammer and jigsaw c/w 2 batteries as standard plus a 3rd battery free	£429.00
Dewalt DW988K2S 18V combi hammer and trim saw c/w 2 batteries as standard plus a 3rd battery free	£429.00
Dewalt DW5KIT2 18V combi, trim saw, recip saw, jigsaw, and torch c/w 2 batteries plus a 3rd battery free, plus DW920K free	£689.00

BISCUIT JOINTERS

Dewalt DW682K 600W adjustable plus 1,000 biscuits	£175.00
Makita 3901 590W adjustable plus 1,000 biscuits	£195.00
Freud JS102 710W adjustable with case	£119.00
Mafell LNF20 biscuit jointer 750W plus 500 biscuits	£249.00

CIRCULAR SAWS

Mafell KSP40 120mm saw & flexi rail system, case	£269.95
Mafell KSP55F 160mm saw & 1.4m guide rail, case	£279.00
Dewalt DW007K 24V circular saw, 1 battery +1 extra	£299.00
Dewalt DW351 152mm 850W	£129.00
Makita S604R 165mm 950W 54mm cut @ 90	£79.00
Metabo KS54 160mm 1010W	£99.00
plus buy at the same time a metabo 42th blade for just £12	
Makita 5704RK 190mm 1200W plus carry case	£89.95

Dewalt DW62 184mm 1150W plus carry case	£119.00
Makita 5703RK 190mm 1300W plus carry case	£129.95
Metabo K566 190mm 1400W plus carry case	£145.00
plus buy at the same time metabo 48th blade for just £15.00	
Dewalt DW365 190mm 1350W	£119.00
Metabo K5E68 190mm 1600W soft start, double feed, speed control, carry case plus buy a 48th blade for £15.00	£199.00
Dewalt DW383 235mm 1700W	£189.00
Makita 5903RK 235mm 1550W plus carry case	£189.95
Kalton KD184A door trimming saw 184mm 1000W	£229.00

JIGSAWS

Dewalt DW321K 701W vari-speed	£139.95
Dewalt DW323K body grip version	£145.00
Dewalt DW933K2 18v cordless jigsaw, battery, case, charger	£299.00
Metabo STEB135 720W vari-speed, soft grip	£145.00
Metabo STE135 720W vari-speed, body grip	£145.00
Makita 4324 400W vari-speed pendulum	£59.95
Makita 4340FCT 720W new vari-speed & work light	£119.95
Makita 4341FCT 720W body grip jigsaw & work light	£119.95
Mafell STA65E 700W top handle jigsaw	£199.00

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Dewalt DW680K 600W 2.5mm cut	£138.99
Dewalt DW678K 850W 4mm cut, case, dust bag	£159.00
Dewalt DW678EK 1010W cut constant electronic	£199.00
Makita 1902 550W 1mm cut	£89.00
Makita 1923H 850W 3.5mm cut plus carry case	£149.00
Metabo H00882 800W 3mm cut plus case & dust bag	£168.95

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Mafell AD160 planer/thicknesser 160 x 120mm	£509.00
New Record PT260 Planer/thicknesser 10 x 6 with base	£499.00
Dewalt DW733 1800W thicknesser 317x152mm	£369.00
Makita 2012NB 1650W, 304 x 150mm thicknesser	£375.00
Delta 22565 1500W thicknesser 317x152mm	
Plus stand and free delivery	£299.00
Record RD30 12 width planer c/w base	£699.00
Kity 439 planer/thicknesser 195x200mm plus stand	£589.00
Dewalt DW733S planer/thicknesser 250x160mm	£549.00
Dewalt DW730 260x160mm planer/thicknesser	£649.00
E/B HC260M planer/thicknesser 260x160mm	£589.00
E/B HC260K planer/thicknesser HSS blades, cabinet, Scheppach HMS260Ci new cast iron table, 260x140mm or supplied with wheel kit and extra HSS Blades	£769.00
Scheppach HMS3200Ci new cast table 310x180mm	£819.00
Record PT320 planer/thicknesser 320x230mm with 3hp 1500mm Cast tables plus cast bed 250kg	£1499.00
E/B HC333G planer/thicknesser cast tables and bed	£1689.00

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Dewalt DW411 palm sander 170W	£59.00
Makita B04553 palm sander 160W	£52.00
Makita B05012 125mm diameter round	£86.95
Metabo D5E3000i triangular detail sander & case	£72.95
Metabo SXE450 duo orbit 3 or 6mm action 400W plus 50 discs free	£139.00
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Metabo SR358 1/2 sheet sander 350W	£149.00
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Makita 9903 3" vari-speed 1010W	£169.95
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Full range of fixings in stock for both guns!	
Bostitch N79WW2 50-90mm air stick nailer	£319.00
Bostitch SB1664FN 32-64mm air finish nailer	£199.00
Or complete with 24l compressor & hose	£319.00
Bostitch SB1850BN 15-50mm 18g air Brad nailer	£119.00
Or complete with 24l compressor & hose	£249.95
Rapesco 181EL 10-35mm electric 18g Brad gun plus case	£39.99

MITRE SAWS

Delta 36075 1400W 250mm blade	£125.00
Makita LS1040 1650W 255mm blade	£175.00
Elektra Beckum KS250 1800W 250mm	£179.95
Elektra Beckum KS304 2000W 250mm	£299.00
Dewalt DW703 1600W 250mm blade	£249.00
Delta 36085 1400W 250mm double bevelling action	£229.00
Dewalt DW706 1600W 305mm double bevelling	£489.00
Dewalt DW707 1200W sliding crosscut action + legs	£289.00
Dewalt DW712 1600W, 300mm sliding crosscut or supplied with DE7023 adjustable track stand	£569.00
Dewalt DW017K2 24volt cordless mitre saw 2x batts	£549.00
Dewalt DW701 1600W sliding crosscut action + legs	£399.00
Dewalt DW708 102x300mm crosscut sliding supplied	

Complete with de1000 stand and material clamp 240v only	£635.00
E/B KGS331 dust kit, fine blade plus stand and laser	£439.00
E/B KGS255 1300W Sliding Cross Cut Action 255mm	£279.00
E/B KGS303 1800W 81x280mm sliding plus stand	£479.00
Delta 36240 1500W 92x300mm sliding action	£379.00
Makita LS1013K 91x305mm sliding plus stand	£559.00
Scheppach CAPAS3 1800W 102x320mm sliding	£469.00
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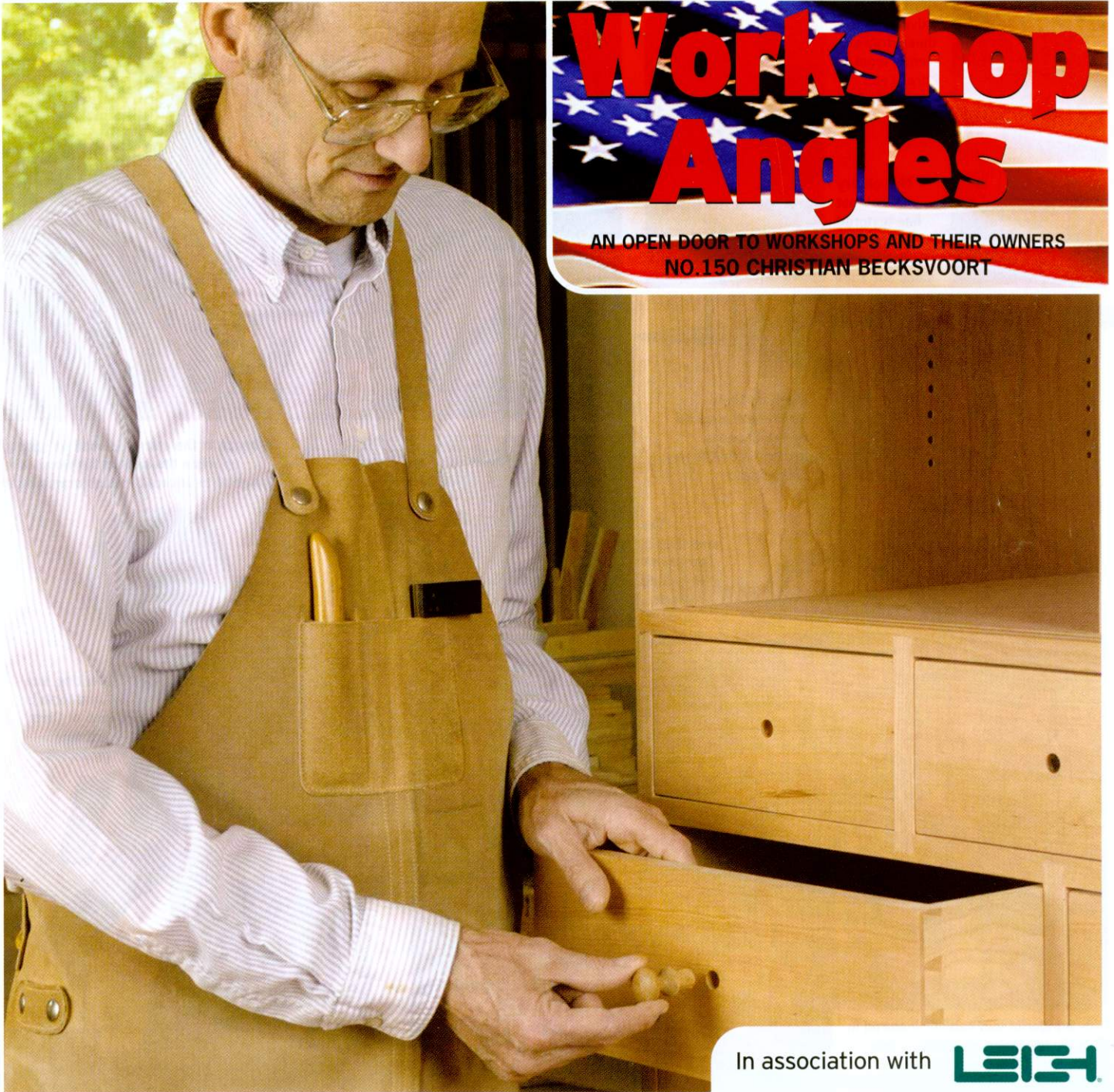
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Workshop Angles

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You're unlikely to come across Christian Becksvoort's workshop by accident. After driving through New Gloucester, Maine, you cross the railroad and head down a dirt track for a couple of miles. The sign outside is



succinct, an indication of what you'll find when you arrive - simple, elegant furniture, built to impeccable standards. It's no coincidence that Chris' work is heavily influenced by Shaker designs. Author of the classic *The Shaker Legacy*, he's one of the few people privileged to have worked on real Shaker furniture. He's done plenty of restoration work for nearby Sabbathday Lake, the only remaining Shaker community.

He grew up in Germany, where his father was a furniture-maker. When Chris was six the Becksvoorts moved to Washington DC, where he later helped out in his father's workshop. Chris then headed north to Maine to gain a degree

This elegant sleigh bed in cherry has turned crest rails. Rosettes top the splayed head and footboards

in forestry and wildlife. Deciding woodwork was not so bad after all, he worked for Thomas Moser for nine years. In 1985 he set up on his own.

Chris has made around 500 items of furniture and works directly with each customer. He sells mostly through his catalogue and website, with no galleries or furniture showrooms to complicate matters. His work can be found in Japan, Europe, Canada and across America.

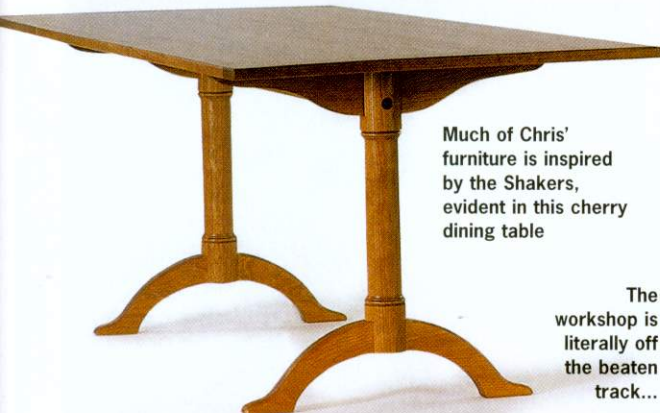
He works alone, handling the marketing, selling and making unaided. "I build everything to order. People write for the catalogue and during the summer I get two or three visitors a week stop by," he explains.

He designed and built the two storey workshop some twenty years ago. Wood



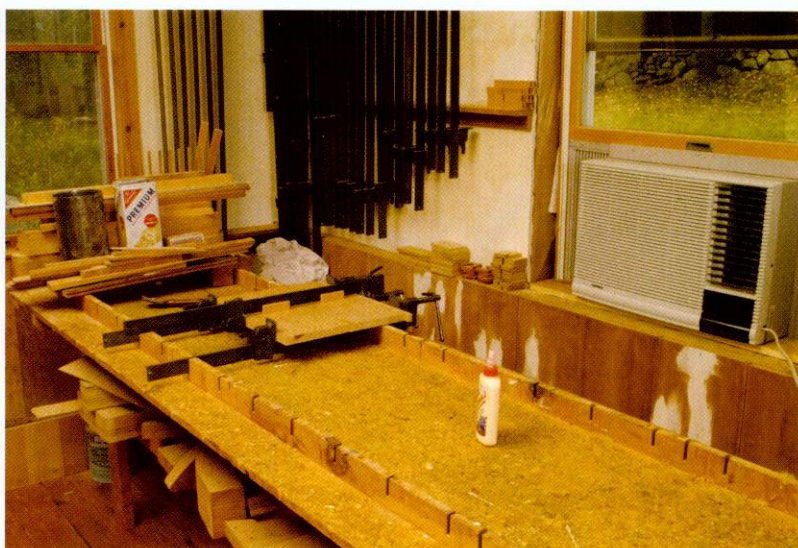
Chris salvaged these drawers from a local library and uses them for storage

This cherry wall cabinet has textured door panels and smooth stiles and rails



Much of Chris' furniture is inspired by the Shakers, evident in this cherry dining table

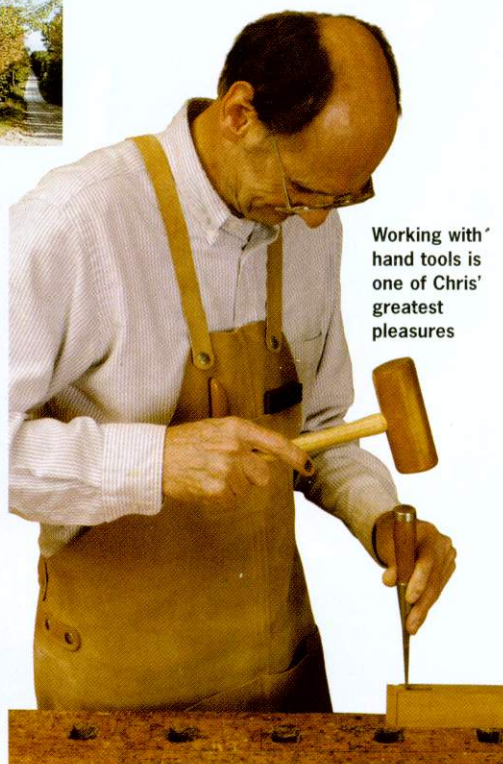
The workshop is literally off the beaten track...



A bench in the corner is used for gluing up. Note the slots in the wood rails designed to accept the sash cramp bars



This wonderful tool cabinet featured in *Fine Woodworking* magazine a few years ago. "There isn't a piece of plastic to be seen in there," says Chris



Working with hand tools is one of Chris' greatest pleasures



The sleigh was popular 100 years ago during the New England winters. This *Snow Glider* is made of laminated ash with brass metalwork. It's finished in lacquer with gold leaf pin stripes and leather upholstery

is stored upstairs, accessed by stairs in the middle of the shop. "When I get a truckload I waste a day just carrying boards up. When I built it I figured I'd add more square footage. It's cheaper to build two storeys, but it creates a bit more work in the long run. It's no big deal, though."

Most of his furniture is made from black cherry, mainly from Pennsylvania.

"I've been using it for 30 years and have got to know the stuff pretty well. It's an attractive wood and fairly well behaved. It's hard enough for table legs and chairs, and a nice compromise for cabinetmaking."

Chris gets a truckload delivered twice a year and he usually buys about 500 board feet at a time.

"I deal with an outfit that have been in

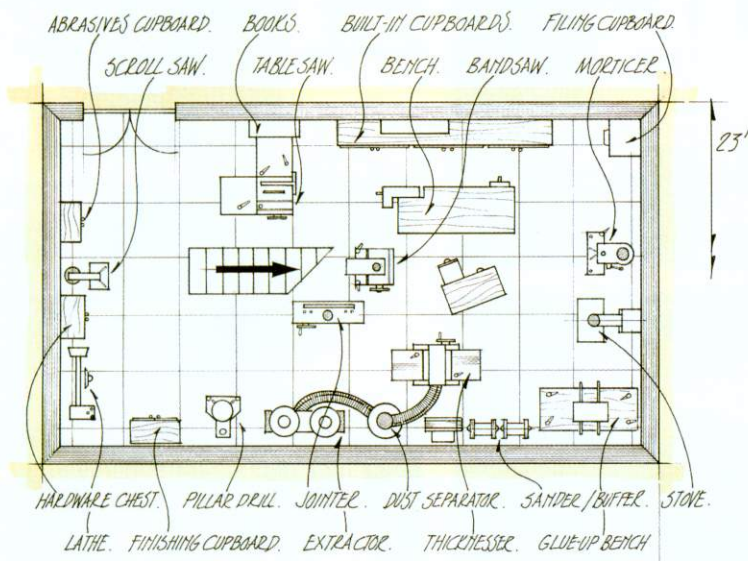
business since the late 1800s and have their own woodlot. They have 125,000 acres and know exactly what they're going to cut every year. Most lumber yards will buy on the open market, so you don't know where the wood comes from, whether it's been stripped or clearcut. These folks do a really nice job taking care of their land."

Boards are stacked according to width and thickness, and some downstairs are up to 36in wide. "I mark it all, where it came from, whether it's got knots, sap and so on. I use different colours for different deliveries," he explains. In a corner is a stack of gorgeous figured cherry. There are also a few boards of maple and walnut.

"They are one of the few yards to sell me quartersawn lumber," he smiles.

Chris is an authority on wood

SHOP LAYOUT: Christian Becksvoort



This Music Stand has a shelf that adjusts on a dovetailed slide and pin



Shaker Tall Clock in ebonised maple. It took Chris years to locate a suitable handmade mechanism



Chris built this delightful rustic storage shed near the workshop



A cherry chest of drawers with around 200 hand-cut dovetails...



Powered sanders include an elderly Skil chain-driven model



Rows of cupboards ensure every tool has its home. Hand tools are grouped together

movement. He used to determine the expected movement with a calculator, then build accordingly. He now uses a conversion guide from Lee Valley Tools.

"I go through an awful lot to make sure the wood is free to move. I over-compensate for everything. For instance, a customer in Georgia, where humidity is high, could move to Arizona, which is very dry. You never know where furniture will end up. Only once have I had a piece back for repair," he confesses.

The workshop is equipped with a few machines, mostly General, from Canada. He has an Italian Griggio slot morticer, the only three phase machine, plus a Makita thickness planer.

For such a productive shop it's amazingly tranquil, partly because much

work is done by hand. Chris has an impressive collection of fine hand tools, but I wondered if he ever bought old ones?

"It depends. I had a lot of old Stanley and Record planes, but when Tom Lie-Nielsen started producing his range, it was just such a big step forward. He uses computerised machining which give him the tolerances that were not possible 100 years ago. The fact that he uses heavier blades and castings than the originals really adds a lot to the tools."

Chris loves to use dovetail joints. These are all cut by hand, no mean feat when there may be as many as 200 in one piece of furniture... For this reason, tool quality is pretty important. He uses

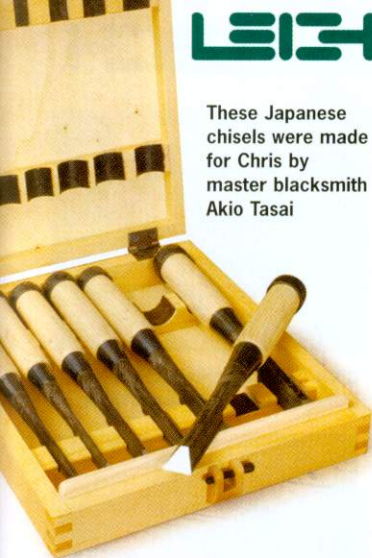


This sideboard is derived from a tailor's bench. It's part table, part chest, and can be used as a freestanding kitchen counter

chisels made by Barr Quarton in Idaho. They often only need to be sharpened once when making a complete piece of furniture, the quality is that good.

Chris has also been working with Lie-Nielsen on their new bevel edge chisels.

These Japanese chisels were made for Chris by master blacksmith Akio Tasai



An old chisel may well become a drawer handle for workshop storage

Most of the machines are built by General and are single phase



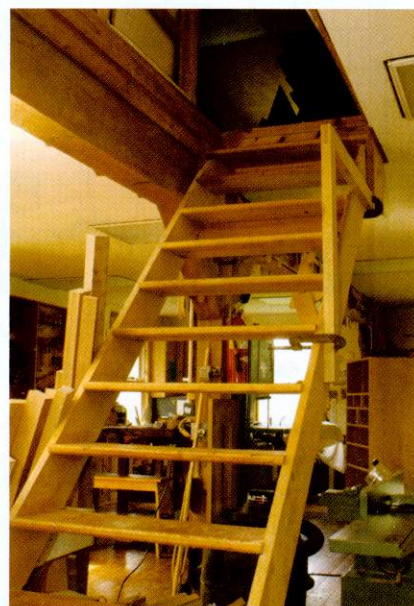
Part of the upstairs wood store, reached by stairs from the workshop



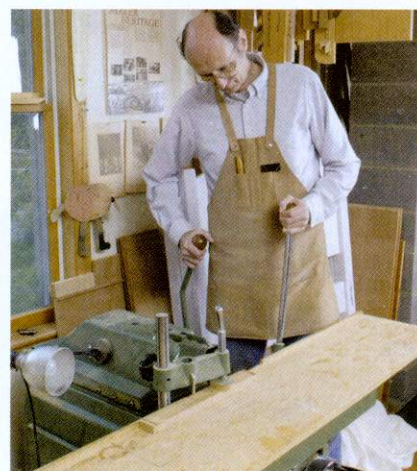
This Makita thickness planer copes with boards up to 15 1/2 in wide



Machining is centred around a cast iron General table saw, which Chris uses fitted with moulding cutters



Chris spent many hours planning the workshop layout, but admits it's not quite perfect



Chris demonstrating his heavy duty Griggio horizontal slot morticer

He shows me an old Disston handsaw. "This is my radial arm saw. When I'm bringing planks down from upstairs, this is what I use to cut them to length. It has an apple handle that just flows into your hand. And when you get tired you can use both hands. It gets sharpened every five years..."

Not surprisingly, Chris is very methodical and has a card index system so he can keep track of every piece of furniture he's ever made. "It's extremely valuable, with work going back to 1985. If I were to have a fire I'd probably grab that drawer rather than my toolbox. Tools can be replaced," he says.

As well as a contributing editor to *Fine Woodworking* magazine, Chris also finds time to pass on his knowledge and skills. "I've taught at a lot of different schools. In three

months of intensive one-to-one teaching you can turn someone into a furniture-maker that's equally as good as someone who's gone through a seven year apprenticeship. I've seen people who have never held a chisel before turning out amazing pieces of furniture."

We meet many talented craftsmen, but it's rare to come across one who can be described as a real master...

After saying goodbye to Chris and his dog Spirit, a husky cross, we head back up the track. The end of a perfect day.

www.chbecksvoort.com

Words by Phil Davy

Photos by Mark Corke

This stunning *Slant-Top Desk* in figured cherry has three secret compartments, a hidden silver dollar and 130 dovetails. It costs around \$13,000...



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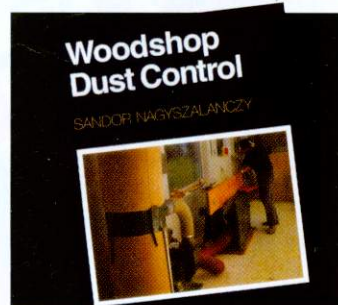
Workshop guide
page by page

Deal with your dust p30



Build your own air filter to
keep the workshop clean

Dust book reviewed p33



Classic book on removing
dust from your workshop

Jet powered filters p34



Ian Dalziel reviews Jet's
AFS1000 Air Filter

Dust over the pond p36



Mark Corke's alternative US
slant on building a filter

The **NEW SERIES** Workshop Guide

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Breathe the air



Does your dust
extraction system
remove all harmful
dust at source? **Ian
Dalziel** suggests you also
need an air filter and shows
how to make one

Having completed quite an extensive dust extraction system for my workshop I was quite pleased with myself, thinking no more dust or endless piles of sawdust to vacuum up. But no matter how well I thought I was doing, there was always a thin coating of dust on my equipment. When I designed my ducting system I approached dust

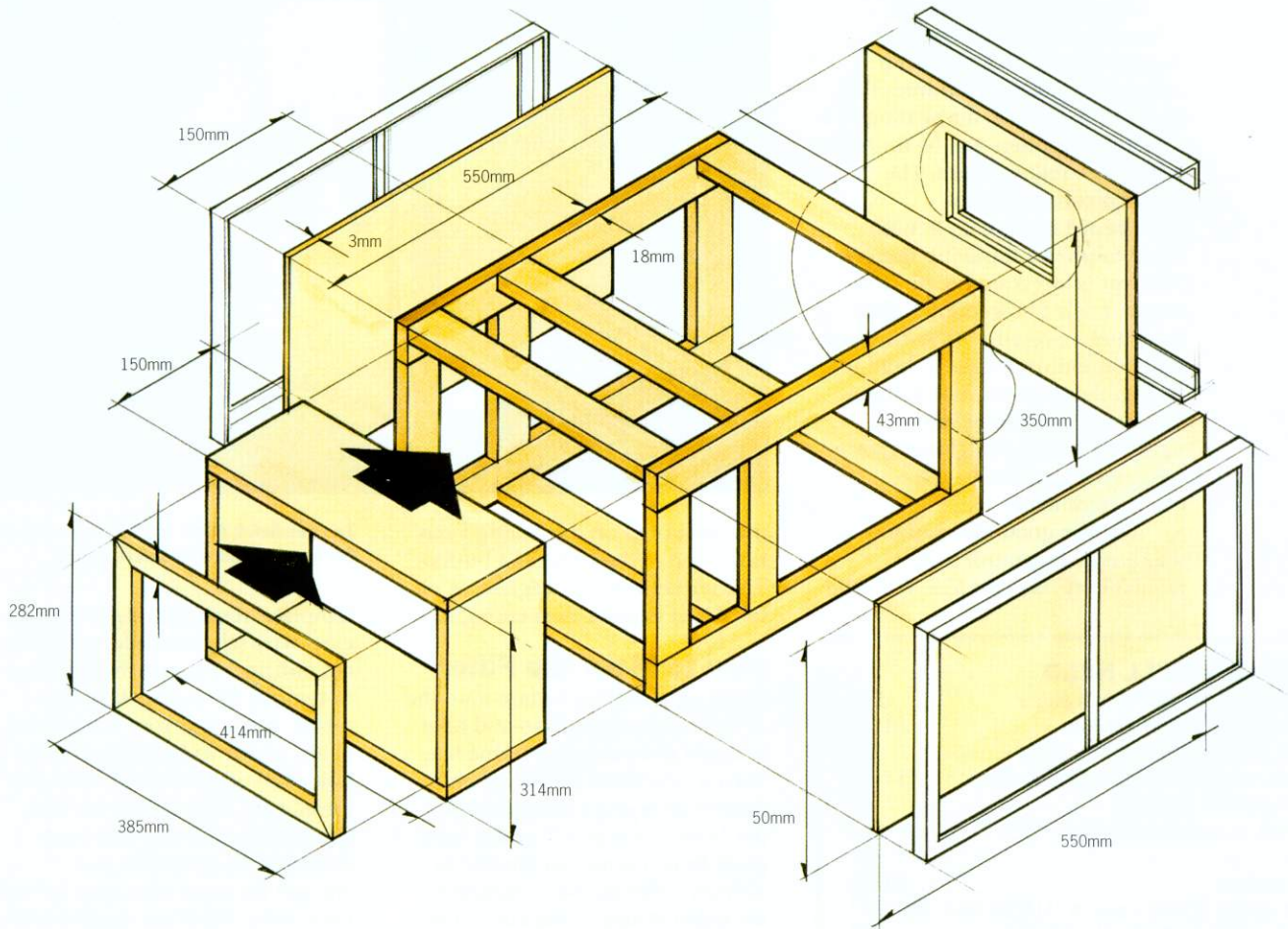
control engineers and followed their drawings and guidelines to the letter; they even came out and did an LV test, which I passed fine. But this fine coating of dust started to annoy me, so I asked the engineers what to do about it. They suggested an air filter.

Whilst working in the workshop on a sunny day I noticed the sun shining through what looked like an incredible amount of airborne dust. I realised that this couldn't be good and that something would need to be done.

Filtered Air

Air filters are designed to stir the whole volume of air in a room, using a small quiet fan motor which can be run constantly rather than switching on and off like the main dust extraction unit. Its main purpose is to keep airborne dust in suspension and reduce this as quickly as possible after the dust

CONSTRUCTION: Build your own air filter



producer has been switched off. Therefore a good fitting, quality dust mask is still a requirement when using dust producing equipment.

The positioning of an air filter is also an important factor to consider. Ideally it should be about 8-10ft above the floor, but if you only have an 8ft ceiling a min of 2/3rds of the ceiling height would be required, preferably, on your longest wall. Try to keep it close to the wall, around 100-150mm.

The exit side or exhaust side of the fan is the largest determiner of

its circulation pattern. Use a smoke bomb or large cigar to observe your circulation. The exit side of the air filter is also the clean air side, so this is where you want to be positioned. Remember that if dust has to pass your nose to get to the air cleaner you lose all the benefits of having one. If you have an odd shaped workshop, it might be better having two smaller units than one big one

If you're buying a ready built extractor, then you'll need to determine the volume of your workshop (multiply its length by

the breadth by the height) in order to choose a suitable unit. Ideally you want to circulate the air in the shop at least six times an hour, the Health and Safety norm. Popular units include those made by Microclene and Axminster and Jet, who all have a range of sizes.

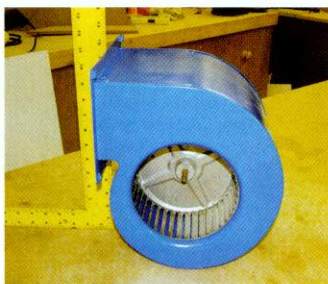
Make Your Own Filter

The filter that I've shown how to build here is suitable for use in the smaller workshop. It has a 100W fan, which should move around 900-1000 m³/hr in a 150m³ (cubic metre) sized workshop around six times an hour. I worked this out

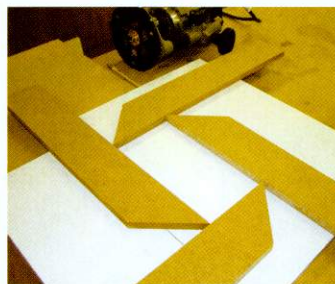
TOOLS YOU'LL NEED

A router with a guide bush and straight cutter to cut the internal aperture for the fan, plus the normal range of hand tools and drills

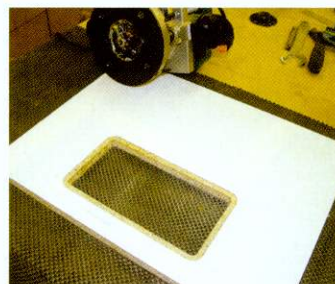
Accommodating the fan



01 Measure up your fan to determine the overall dimensions of the cabinet and intake aperture



02 Four straight sections of MDF can be fixed to a board with double sided tape to create a one-shot template



03 Use this to rout the intake aperture in the front board and then rebate the edges to accept the front grill

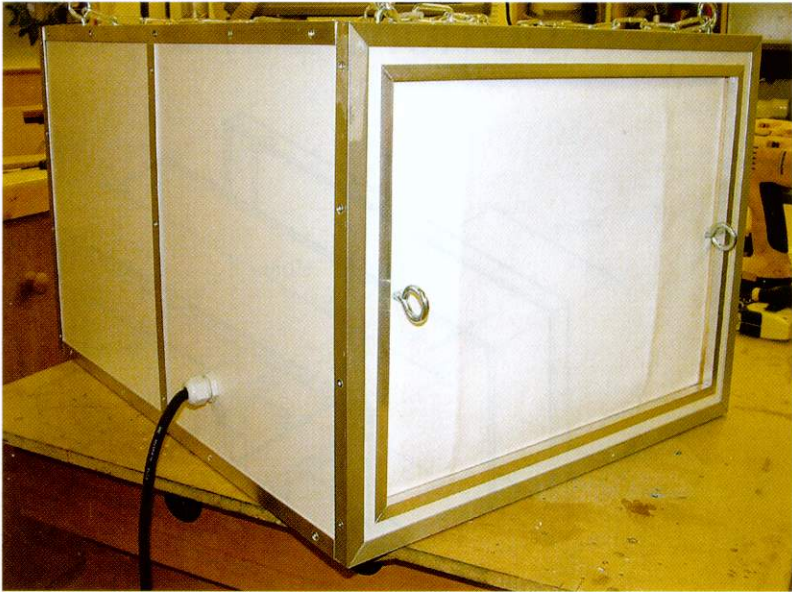


04 Position the fan over this aperture and mark off the fixing holes. Drill and bolt or screw the fan in place

just from the fan's cfm rating, but I reduced this also by 30% to account for the filters.

I made the filters from a 1.5micron needle-felt bag, sourced from a dust extractor and stapled around a frame. The fan is from a warm air heating system – suppliers can be found in your local Yellow Pages. The actual box has a 15mm Contiboard front, with a mesh fitted to prevent straying fingers. The rest is just a simple pine frame, pocket hole jointed, then the frame covered with hardboard, with aluminium edges to hold it all together and prevent damage. The result is a strong but lightweight box, weighing approx 13kg, which can be bench or ceiling mounted.

Another good idea I found was a remote control socket available at B&Q for £20. With the



Two needlefelt filters will take out most of the harmful dust in the atmosphere

unit mounted on the ceiling I can turn it on at the press of a button. This socket can run appliances up to 10A so is more than enough.

How to Make the Filter

1 Set up a roofing square onto the front face of your fan and take a height measurement (mine was 312mm and sizes are based on this) to give you a rough size for the front of the box. Cut the front plate from 15mm Contiboard to 450mm x350mm. Now measure the exhaust size of the fan. Mine was 210x110mm so I cut an MDF template this size and laid it onto my front plate, 40mm down from the top edge and central it.

Now cut four pieces of MDF to 75x350mm and cut one end on each at 45°. Lay the MDF front flange template onto the Contiboard and work the four pieces around it. I used double sided tape to hold them in position, then remove the centre template.

2 Set up a router with a guide bush and cutter (I used a 5/8in bush with a 3/8in cutter) and go around the inside of the

template, remembering to work clockwise (clockwise for an inside cut anticlockwise on the outside), to remove the centre. Install a rebate cutter and rout out a 3mm deep, 10mm wide lip around the hole, into which will be sunk the mesh grill. Position the fan and mark off for the face bolt holes. I drilled mine at 6.5mm, just enough for some clearance for the 6mm bolts. Now cut some mesh and staple it into position, I also mounted the fan at this stage.

3 Cut the timbers for the frames. I used 43x18mm white pine, cut at the tablesaw using an accurate mitre guide . Cut four at 550mm and six at 264mm.

I used pocket hole joinery for making up the frames. Cut two pocket holes in each side of the 263mm stiles. Take two of these to the drill press and drill and countersink 4.5mm holes through the edges for screwing the frames onto the front plate. Once all the pocket holes are done I mounted them into four corner clamps to

MATERIALS YOU'LL NEED

7m of 15x15x3mm aluminium angle	£12
2m 15x3mm aluminium flat bar	£1.50
2m of 10x10x2mm aluminium angle	£4
3m electric cable, plug and junction box	£4.75
Piece of mesh for fan exit	£4
1 needle-felt dust extractor bag	£12
1m chain	£2
10 No 8 eyelets	£1.50
100W fan motor (Electricaire ☎ 01698 844180)	£47
Hardboard, white pine and Contiboard	£14
Total	£102.75

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Front plate	1	Contiboard	450mm	350mm	15mm
B Side rails	4	Pine	550mm	43mm	18mm
C Side stiles	6	Pine	263mm	43mm	18mm
D Crossmembers	6	Pine	416mm	43mm	18mm
E Filter frame	4	Pine	282mm	25mm	18mm
F Filter frame	4	Pine	385mm	25mm	18mm
G Filter housing	2	Ply	416mm	150mm	12mm
H Filter housing	2	Ply	289mm	150mm	12mm
I Box cladding	2	Hardboard	550mm	350mm	5mm
J Box cladding	2	Hardboard	550mm	450mm	5mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

Building the framing



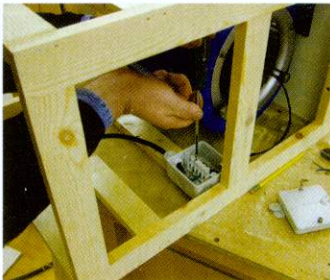
05 Two side carcass frames are jointed with a pocket hole joiner. You could mortice and tenon these or butt screw



06 Assemble the frames and screw together. Note that the two internal battens are central here



07 These two frames are screwed directly to the front panel containing the fan, with the edges flush



08 Fit a pair of stretchers top and bottom at the other end, one at the end and one 150mm in to carry linings

ensure squareness when assembling. Mount one of the stiles in the middle. Once assembled, clamp into position and screw onto the face plate.

4 Now cut cross members for the frame, six at 414mm white pine as before, and nail these into position, one at the end where the filters go, one in the middle and one 150mm in from the end. This one is to support the plywood filter frame.

I also fitted and wired a junction box at this point. Remember to give yourself plenty of cable length to reach your socket. Get an electrician to do the wiring if you are not sure.

5 Now cut four pieces of 12mm plywood to 150mm wide, two at 416mm and two at 289mm. Fit these flush with the back of the box and brad into place. Cut some 18x18mm pine to go round the inner face of the plywood, and again brad into place to stop the filters from falling inside the box.

6 To make both the filters, first cut and mitre some 25x18mm white pine, four at 282mm and four at 385mm, and lay them into the corner clamps to ensure squareness. Put glue on at the mitres then use V nails (I used my Pushmaster from BriMarc for this) on both sides of the frames to join them together. Once done, remove from the clamps and clean off any excess glue.

Sit one of the filter frames on top of the needle-felt and cut around it, leaving an excess of about 40mm all round. Staple this onto the frame, pulling it tight as you start to work your way around. Trim off any excess then do the other frame. Screw on a couple of small screw eyes to give you something to hold onto whilst positioning the filters into position.

7 Cut some hardboard to go around the frame. You could cut this oversize then rout down using a flush trim but it gives a feathery finish on the hardboard so I just cut it to exact size. I initially started to brad it but the brads kept popping through, so I eventually decided on hot-melt glue to position, then went around it with the aluminium.

Cut four pieces of hardboard, two at 550x350mm and two at 550x450mm, and glue these into position on the framework. They should be flush all round.

8 Go around the whole box with aluminium angle 15x15x3mm to strengthen the corners. This was a bit more difficult than I first thought but I eventually learned to hacksaw the stuff slightly oversize and take it

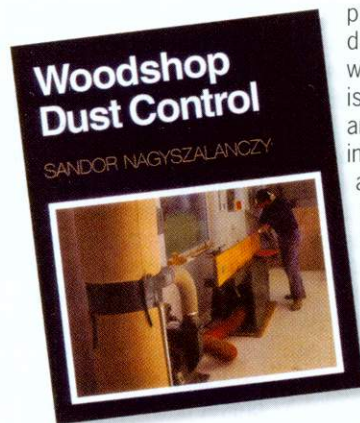
to my belt sander, where I had the mitre gauge set up at 45°, and sand it down for a perfect fit. Drill and countersink the angle and use 3x16mm screws to fix. I also used some flat bar for the middle, and 10x10x2mm angle at the backend where the filters fit in. This was done using some hot melt glue.

9 The actual box is quite light and I wanted to be able to either sit it on a bench near where I was creating sawdust or be able to hang it from the ceiling and keep it out of harms way. I bought a metre of chain and some eyelets, I screwed the eyelets onto the top of the box 40mm in from each corner and cut the chain into four equal lengths and fitted these to the eyelets. I also fitted some spring-loaded D rings onto the chain to allow quick fitting.

NEXT MONTH

How to construct an effective and safe tenoning jig for the table saw

Woodshop Dust Control



By Sandor Nagyszalanczy

Publisher: Taunton Press

Books

ISBN No: 1-56158-116-X

Price £16.95

Dust in the workshop isn't the most stimulating of subjects to write about. But making it and, more importantly,

preventing it from doing damage is a fundamental of woodworking life. This book is full of excellent technical and practical workshop information on subjects such as setting up a system to suit your needs, with charts to calculate how much drawing pressure is needed for specific bores and lengths of tube. Full systems aren't the only coverage, though, with individual scenarios for separate tools also covered.

A lot of people tend to skimp on dust control, making do with personal dust masks at the offset, and these are given space, with the pros and cons of each type discussed, from paper versions through to the AirShield type respirators.

Fine, invisible dust causes

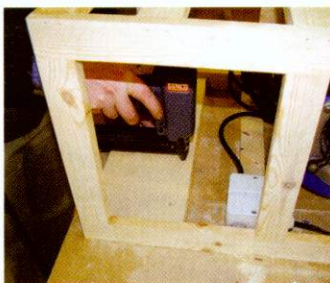
the most damage, so fine filtration gets good coverage, and if you fancy making your own fine filtration extractor (such as those shown on these pages), there is a chapter showing you how to build one.

If you are setting up shop and want to get it right first time, this book will help enormously, and for the sceptical out there, the information on what to expect from over exposure to dust inhalation is worth reading.

Andy King

Woodshop Dust Control

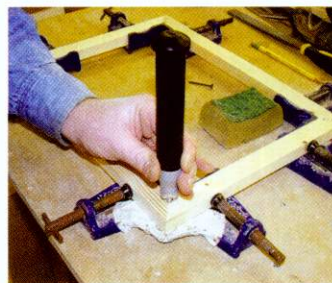
Words	●●●●○
Drawings	●●●●○
Photography	●●●●○
OVERALL VALUE	●●●●○



09 Cut 150mm wide ply linings to suit and pin these around the four internal sections of the carcase



10 Now cut and pin a 15x15mm batten all round the inner edge to act as a stop for the inner filter



11 Make up two filter frames to fit snugly inside the linings. Mitre the corners and reinforce



12 Staple a needlefelt filter fabric over the frames as shown. Make sure you allowed for this when making the frames

Jet AFS 1000 Air Cleaner

£268.86 ☎ **0845 604 0064**

www.jet.uk.com



Despite having spent money on a good extraction system, fine dust still seems to appear every time I go into my workshop. I started to look at various air cleaners and Jet's AFS 1000 caught my eye. I have had it over a year now and would be lost without it. My workshop is 38m³ and the air is filtered up to eight times an hour on a minimum setting.

The unit is heavy and very solidly constructed and the paint finish is very good. Four clips allow it to be screwed to the ceiling, but there is an optional hanging kit to allow it to be suspended from a high ceiling. Positioning the filter is important; ideally a min of 2m off the floor, preferably above a dust producer and close to a wall. This is important to get the whirlwind effect going around the workshop.

Mounting the filter to the ceiling is not a one man task. It weighs 25kg and measures 915x610x300mm, and standing on a ladder trying to screw it up is not my idea of fun. My son and I lifted it to its position then I slipped in two dead man supports to take the weight and allow more accurate positioning. I screwed direct to the trusses, using heavy rag screws.

The cable length is a bit of a disappointment – an extra half metre would have made a huge difference, I eventually moved a socket closer to the



fan, not a problem but others might have difficulty here

The air cleaner has a two filter set-up, an outer and an inner filter. The outer is a five micron electrostatic pre-filter and the inner then reduces it to one micron. A charcoal filter option is also available, which other air cleaner manufacturers don't seem to offer. It is used more for solvent fumes. My understanding of charcoal filters is they can take out 75% of fumes from the air, a definite positive if you use a lot of spirit base solvents.

The outer filter can be vacuumed a few times before it eventually disintegrates and requires replacing. The inner filter hasn't required anything more than a light vacuum so far. The outer filters are expensive at £7.95, inner ones are considerably more at almost £30 but looking at mine I don't think it will ever need

replacing. I also found that the outer filters are a standard size and can be bought locally at my filter supplier a good bit cheaper.

The filter unit has a three speed fan which can be timed. It is also remote controlled, but I have found that you have to be facing the unit's exit side for it to work – the aerial could be better positioned to allow all round control. The timer function has grown on me; I use it when I leave the workshop and let it run on for a preset time. It has three presets: two hours, four or eight. I have only ever used it at two.

Noise levels take a bit of getting used to. On its lowest setting it's bearable but eventually blends in as background noise. I have turned up the radio slightly but I can still talk fine on the phone. The second setting is

noisier, the third or highest setting I only use when I'm sanding something, with ear plugs in, for short periods of time. Still, it doesn't compare to a router, and 95% of the time it's on its lowest setting.

When first installed I put the Jet on its highest speed then put on a dust mask and blasted years of settled dust hiding in nooks and crannies with my compressor and air gun set-up. This created massive clouds of dust and it took me three hours of repeated blowing to get the place clean.

I am glad I did this at the start because the unit seems to cope very well with all day to day dust. I have noticed a big improvement in my breathing, I am no longer coughing up flemp the way I used to, and nor do varnished projects have the little bits of dust on them any more.

Overall I am very pleased with the unit. It does exactly what it was designed for and I would highly recommend it to anyone wishing to take control over their dust problems.

Ian Dalziel

GW verdict

➕ Remote control, timer

➖ Cable, price of replacement filters

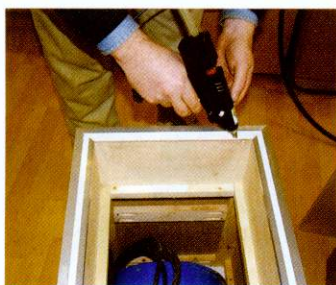
Value for money
Performance



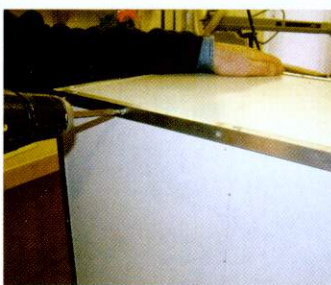
Filters and cladding



13 Cover the four sides of the carcass with white painted hardboard glued and pinned into place



14 Fix angle alloy sections around the filter opening to retain the outer filter frame



15 Use a larger section of alloy angle to reinforce all the corners of the carcass. Screw through to the framework



16 Fix substantial eyelets into the framework to suspend the unit with a series of chains from ceiling hooks

WIN a JET workshop worth over £10,000!



One of the machines you can win is the JET JWBS14 bandsaw. It has a cutting depth capacity of 200mm and a throat of 350mm. It sells for around £665

To help us celebrate 150 issues of *Good Woodworking*, **JET Tools and Machinery Ltd** have pulled out all the stops to come up with a fantastic competition. In fact, it's the biggest prize that has ever been offered in *Good Woodworking*. Not only will the winner receive a host of JET machines, but they'll win an actual **Lugarde** timber workshop, measuring 4x4 metres!

The prize will be presented to the winner at the Axminster Tools Show 2004 (November 11th to 13th) at the

Westpoint Exhibition Centre, Exeter, Devon. You will need to collect five tokens appearing in *Good Woodworking*, starting with this issue. Then answer the three questions below (the entry form can be photocopied if necessary, but the tokens *cannot*).

Alternatively full details are shown on the *Good Woodworking* website: www.goodwoodworking.co.uk

For more details of JET machinery, check their website: www.jettools.co.uk

The JET JTS250S Supersaw is also part of the prize!

How to enter

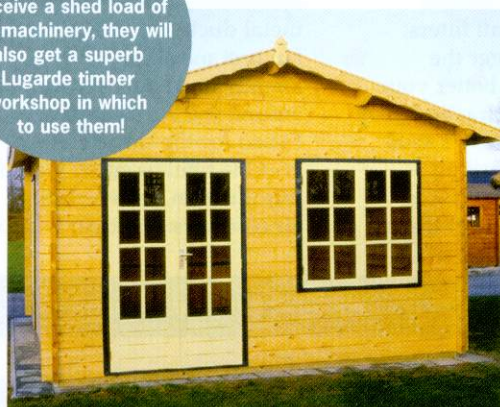
You need to collect all **five JET TOKENS** appearing in *Good Woodworking*. Answer the three questions, complete the entry form (a photocopy is OK) and send them together in an envelope to: **JET Competition, Good Woodworking, 30 Monmouth St, Bath BA1 2BW**. The winner will be the first correct entry opened after the closing date of **October 25th 2004**.

The competition is also featured on these websites: www.goodwoodworking.co.uk
www.jettools.co.uk



JET's 54A jointer is one of the machines included!

Not only will the lucky winner receive a shed load of JET machinery, they will also get a superb Lugarde timber workshop in which to use them!



Entry form

1. What is the name of the American President's jet?
2. Sir Frank Whittle was co-inventor of the jet engine. Who was the other?
3. Who presents the JET-sponsored TV programme **The Great British Woodshop**?

Name:

Address:

Postcode:

Email:

Daytime phone no:

☐ Tick box if you do not wish to receive further information from Future Publishing Ltd or Jet Tools & Machinery Ltd

Rules

1. Competition open to all UK residents except employees of Future Publishing Ltd, Jet Tools & Machinery Ltd, Lugarde and associated companies, their families or agencies or anyone connected with the competition.
2. The winner will be announced in *Good Woodworking* and the prize presented at Axminster Tools Show 2004 in November.
3. **No purchase necessary.** Should you wish to enter the competition without purchasing the magazine, please send an A4 SAE for vouchers plus entry form to: Jet Competition, Good Woodworking, 30 Monmouth St, Bath BA1 2BW.
4. There is no cash alternative. Prize includes delivery, but workshop erection and machinery installation is not included.
5. No multiple entries.
6. Competition closing date is 25th October 2004

GOOD WOODWORKING'S BIGGEST COMPETITION EVER!
Win a JET dream workshop
TOKEN 1

Letter from



AMERICA



Mark Corke has his own version of an air filter which he shares with you here. It can be bench mounted or hung from the ceiling and will take about two hours to make

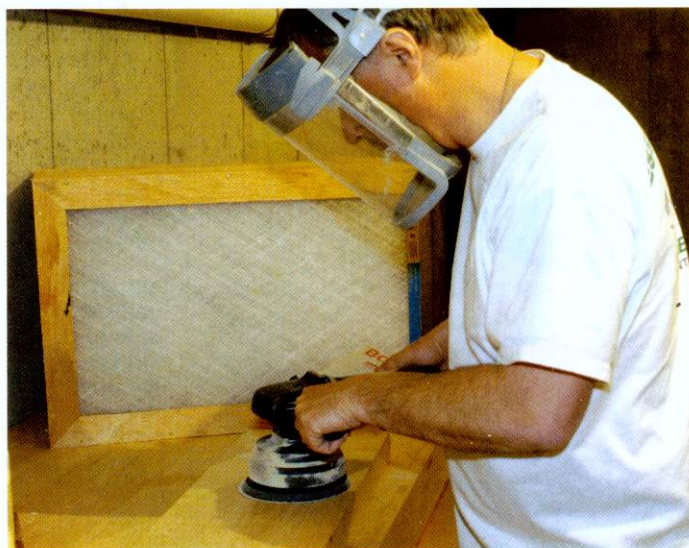
Breathe the air

As promised in my last *Letter From America* I bring you my do-it-yourself workshop air cleaner. Fast, cheap and easy to build, it is perhaps not as elegant as some of the tool store bought models but it is surprisingly efficient.

Any workshop air cleaner works in much the same way; air is drawn through the unit with the help of a large fan. A couple of filters at the front trap airborne particles down to about 1 micron, which is so small that you cannot see them. As these filters become clogged and dirty they are simply replaced.

You will see from the photos how easy the unit is to make, I made mine in less than two hours and that including taking the pictures as I went along. Of course you could make it with a little more finesse but that would not increase the efficiency in any way, it would just look smarter in the workshop.

I have given dimensions and a cutting list but these reflect the size of filters and



fan that I used; feel free to alter these to suit the availability of materials.

Filters and Fans

Don't go for small filters; basically the larger the surface area the better your unit will be at attracting dirty air. Talking of filters I used some from a forced air conditioning system. You should be able to get these

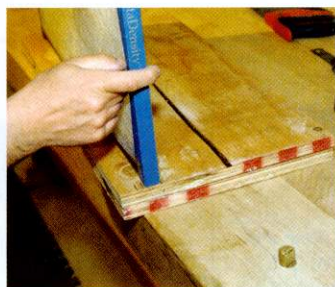
from a plumbing and heating suppliers. The fan came from the same source and is meant for a forced ventilation system where it would fit into metal ductwork. Filters and fan cost me about \$50; I already had some ply kicking around the workshop, which I used for the carcass.

One final word by way of introduction, the workshop air cleaner is just that. It is to

Making the cabinet



01 Cut all the components to size. The main box is made from ply but for a deluxe job use solid timber



02 Use the filters to mark out the position of the filter battens. The filters need to be a sliding fit



03 One cheek is narrower than the other to allow the filters to slide in. For a 25mm thick filters it's 60mm narrower



04 Rip the material to width on a table saw or bandsaw then plane to remove any rough edges

TIP

Using two filters the front one always gets soiled the soonest. When the time comes to replace this instead of simply sliding in a new one move the rear filter to the front and slide the new one into the vacant rear slot in this way you will get the maximum use from each filter.

clean the air in the workshop, it is not a dust extractor. The aim should always be to extract as much of the dust as possible at source with suitable vacuums etc.

Building the Carcase

1 The first thing is to cut all the parts to size as outlined in the cutting list. Although the box is simply screwed together you still need to cut the ends square or the job will go together with a twist making the filters hard to slide in. Do not use material thinner than 18 mm for the carcase or it will resonate when the fan is running.

After cutting the ply on the circular saw plane up the edges to remove any roughness. Some glues used in sheet materials can be very hard on machine knives so consider doing your planing with a sharp jack plane

2 Use one of the filters to mark out the position of the filter battens, I am sure that there is a better name for these little pieces of wood but they are the small sections that form the channels for the filters to slide in. If you are using 25mm thick filters,

which are a common size, place a mark 60mm back from the front edge and, if you have not done so already, use this mark to mark the final width of the narrow cheek. Then cut and plane this to width.

3 With all the four sections of the carcase ready glue and screw the corners. Make sure that the box is square; you can do this by measuring across the diagonals with a pinch rod.

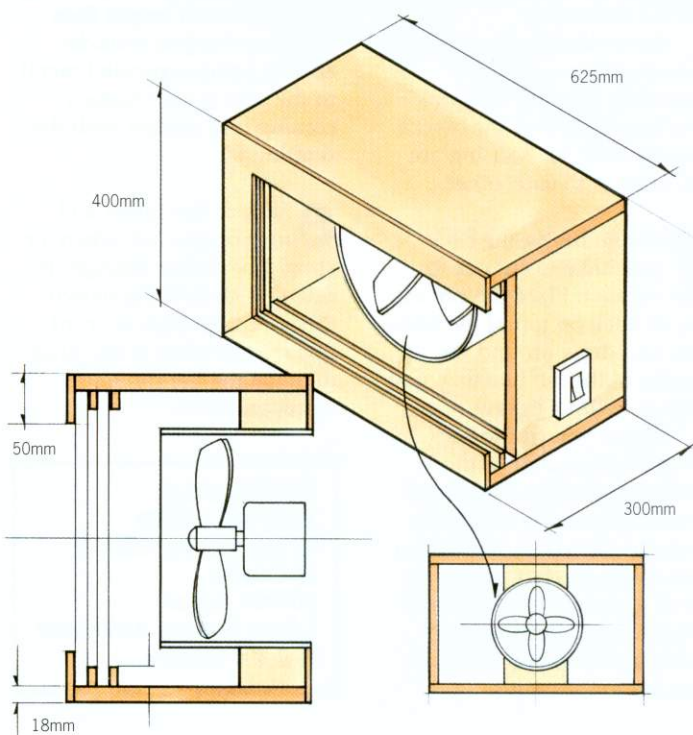
You will notice too that I use plasterboard screws for screwing into the ends of plywood. These screws have a narrow root and the sharp threads hold far better than conventional woodscrews in this instance. Put screws about 50mm in from each edge and then place another couple equally spaced between these, making four on each corner.

4 Glue and pin on the filter battens, noting that they are higher than they are wide. You will see that the inner one that I am fixing in the photograph is aligned with the edge of the narrow cheek.

With the inner battens in place pin on the outer ones, which should be positioned so that the filter is a snug sliding fit, it is a good idea to make up a spacer block just a gnat's thingy wider than the filter that you will be using.

5 Use some ply offcuts to make up the architrave at the front, mitring it at the corners for neatness. Sand up the inside edges to remove any roughness that could tear the filter fabric.

DETAILS: Air filter



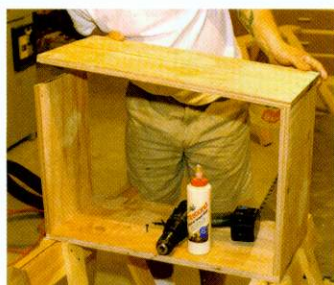
CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Top and bottom	2	Ply	625mm	300mm	18mm
B Cheek	1	Ply	364mm	300mm	18mm
C Cheek	1	Ply	364mm	240mm	18mm
D Back	1	Ply	625mm	400mm	6mm
E Fan supports	2	Pine	300mm	100mm	100mm
F Filter battens	4	Pine	600mm	15mm	10mm
G End filter battens	2	Pine	300mm	15mm	10mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

6 The fan is mounted into the carcase with wooden blocks. Space these apart face down on the bench the exact same distance apart to the outside edges as the internal dimensions of the box. Sit the fan on top and use a pencil to mark the fan housing radius.

Cut this out on the bandsaw. Most saws will cut around this easily as the radius is not that tight, but I had a 25mm blade in my saw so I had to make relieving cuts down to the line. Of course I could have changed the blade for something narrower, but with



05 The main carcase is simply glued and screwed. Check it for square as you assemble it



06 Plasterboard screws are perfect for screwing ply as they do not split the veneers and the hold is excellent



07 Glue and pin on the filter battens, making sure that they are parallel with the front edge of the box



08 Glue and screw 6mm to the front to act as a holder for the primary filter and prevent it falling out. Sand the edges

just these two cuts it hardly seemed worthwhile, and anyway the relief cuts made all the difference.

Screw the blocks to the fan housing then screw this assembly into the inside of the box. Note that the blocks, carcass and fan housing are all flush with each other.

7 Before fitting the back you have to cut out for the exhaust. Place the carcass on its back on top of the 6mm ply and draw around the inside of the fan housing. Cut this out with a jigsaw.

Before you fit the back, wire up the motor to the switch and cable. I mounted the switch on the side of my box but put yours where you can easily reach it. If you are at all unsure with electrics it might pay to get someone who is to help you wire up the fan to the mains.

I intend to mount my fan in the workshop rafters but if you are going to be operating yours at bench height then you may want to consider adding some expanded metal to the rear to stop fingers coming into contact with the rotating fan.

8 Slide in the filters and turn on the fan, when air should be drawn through the filters. If air is being blown through from back to front reverse the wires in the plug to make the fan run in the correct rotation.

MATERIALS YOU'LL NEED

Air conditioning filters @ 16x25x1in
300mm dia fan
2.5mm twin and earth cable
Plug and switch

“You could make it with a little more finesse but that would not increase its efficiency”

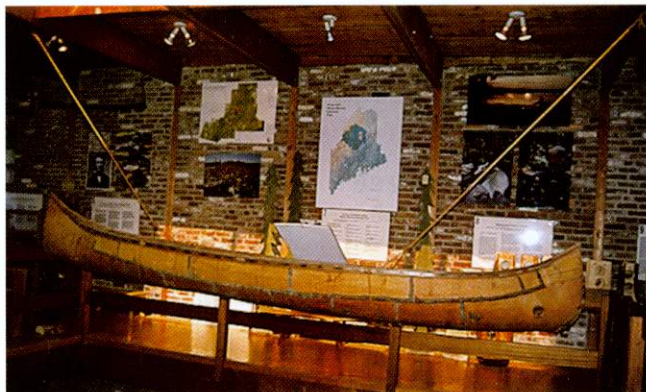


The ply cabinet is designed to accept the disposable filters which simply slide into place. They will trap particles down to 1 micron

In The Woods

After our workshop visits in New England last September, editor Phil Davy spent a few days exploring Acadia National Park, on the Maine coast. He came across a rather neat store in Bar Harbor, close to the Park. Called *In The Woods*, downstairs is stocked with everything from skateboards to chess sets, bird boxes and wooden items from Africa and Pakistan. A beautiful canoe from local maker *Island Falls* was on display. They feature in next month's *Workshop Angles*.

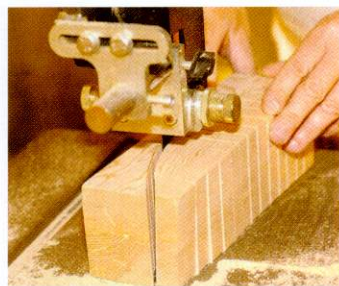
Upstairs is an information centre for a proposed Maine Woods National Park & Preserve, which may just become America's next National Park...



The upstairs gallery is devoted to info about a proposed National Park. Displays include a traditional birch bark canoe and even a stuffed bear!



09 The fan is held in place with blocks, mark the radius directly from the fan housing



10 If the radius is too tight for your bandsaw blade make relieving cuts to the line before cutting away the waste



11 Screw the blocks flush with the rear face of the ply box so they hold the fan in place



12 Screw the ply back directly onto the assembled carcass after cutting out for the fan exhaust



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JSG-96

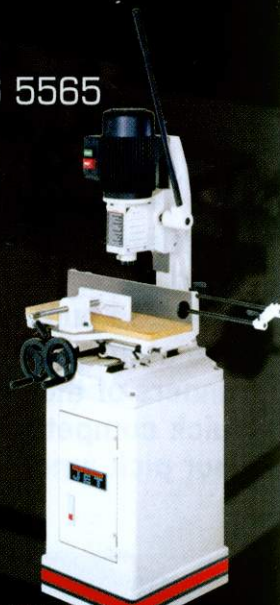


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- A heavy duty combination belt and disc sander
- The powerful 0.75hp output motor tackles the heaviest of jobs
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Competitive selling price inc. VAT
(machine & stand) £469.00

719-A

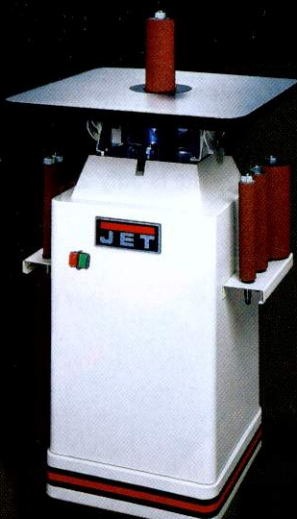


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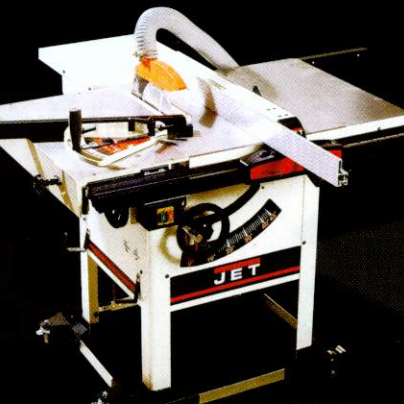


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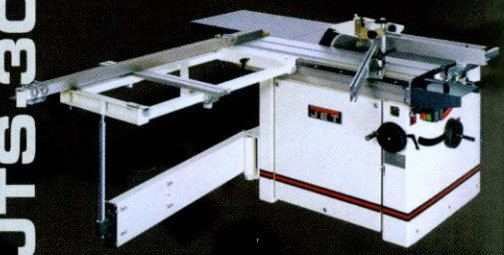
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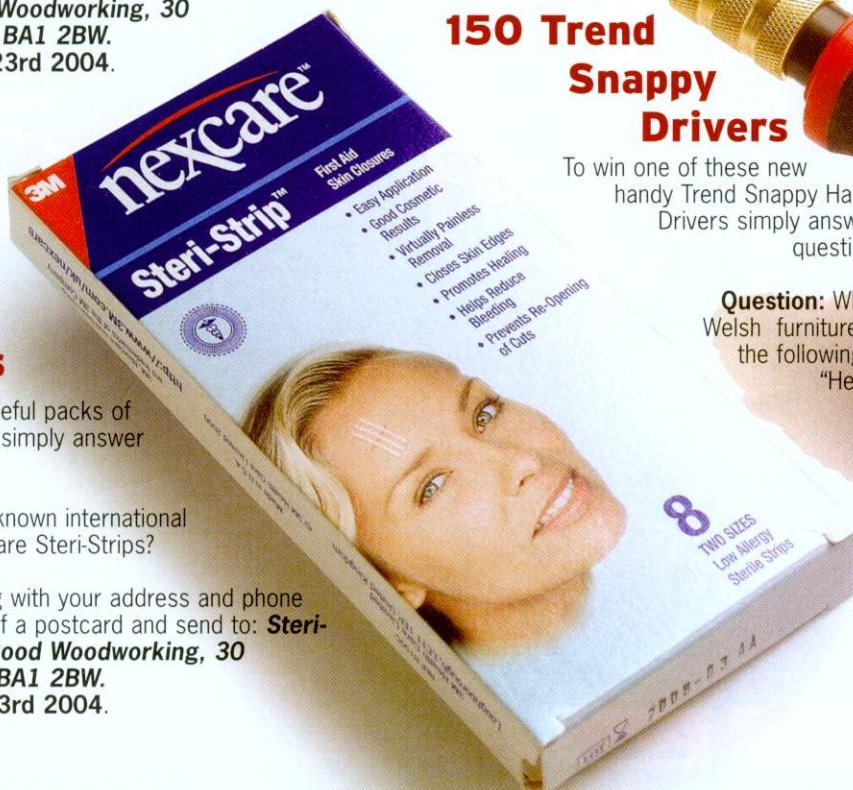
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Bandsaws

A bandsaw is one of the most useful machines in the workshop. But how do you choose the right one?

PHIL DAVY and **ANDY KING** give some guidance and test four models, ranging in price from £99 to £750



Contents

Bandsaw guide p43
10 reasons to buy a bandsaw p44
Tension, tracking & blade guides p44

Tests

Charnwood W711 p45
SIP 01486 p46
Record Power BS300 p47
ESY H360 p48

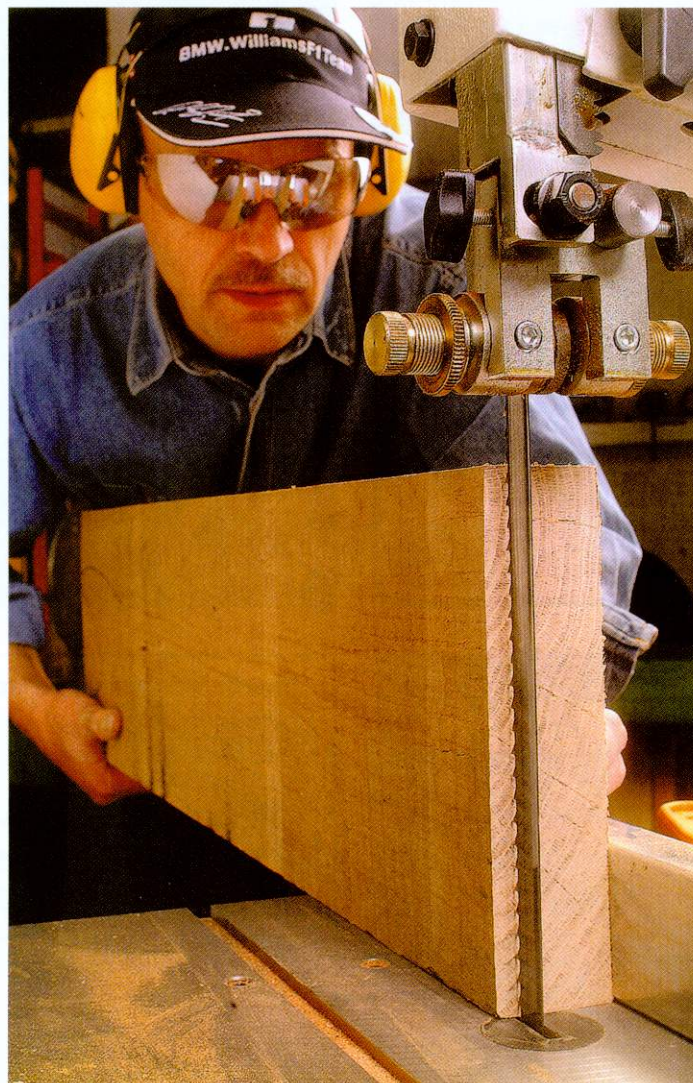
For many woodworkers the bandsaw is the most useful machine in the workshop. It's not just limited to cutting curves. It can be used to rip timber, crosscut, produce bevels or mitres and cut joints easily. It's as useful to the woodturner or carver as the joiner or cabinetmaker.

With the Far East now dominating the machine market, prices are being driven lower than ever, while the quality in some cases is increasing. For instance, who would have thought a few years ago that you would be able to buy a saw with a cast iron table for less than £100?

Bandsaw Basics

What do you need to look for when buying a bandsaw? Think about the sort of work you want to do, and of course budget. Will you need to rip or crosscut deep hardwoods on a regular basis? If so, don't choose a machine with a small motor. For ripping work the wider the blade the better, but this restricts curve radius.

Will you be cutting curves in sheet material? Then the throat width (distance between blade and the neck of the saw) could be



important. You may be able to get away with using a jigsaw when cutting MDF or ply.

If you need to swap the blade frequently (for tight curves or ripping cuts), how easy is it to change over? Some bandsaws can be a real pain when it comes to adjusting the blade guides. Lower guides below the table can be frustrating to set. Record Power's clever quick-release tension device (see page 47) is a real time-saver.

For cutting both soft and hardwoods you only really need one speed. If you're likely to be working in metals

or plastics, a second, lower speed is pretty handy.

A bandsaw must be built solidly if it is to perform accurately. When you apply tension to the blade considerable force is exerted on the frame. The heavier gauge steel the better, and it should be braced inside. And the greater the throat width the more rigid the machine needs to be. You certainly don't want any flexing in the steel frame.

Upper and lower bandwheels have rubber tyres bonded to them. Whether wheels are spoked or solid,

it's essential that these are balanced, rather like car tyres. This prevents vibration as wheels rotate.

Tyres are normally crowned so the set of the teeth do not dig in excessively and wear the rubber prematurely. This also keeps the blade centred on the wheels as it runs. Blade tracking is usually adjusted easily with a knob at the back of the machine.

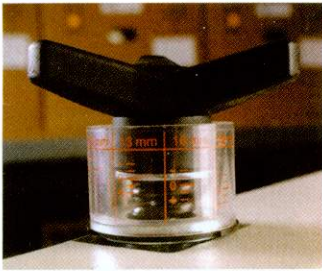
Aluminium tables are still fitted to some bandsaws. This may not offer such robust support as cast iron, nor is it as effective at dampening vibration. A cast iron table still needs to be flat to be of any use, though. At the bottom end of the market, quality control may not be as tight as it should be, and table quality can be a prime example. A box section, extruded aluminium table that's flat is superior to a cast iron one that's not.

A bandsaw may be safer than most woodworking machines, but it still creates a lot of sawdust. Make sure you connect it up to an extractor.

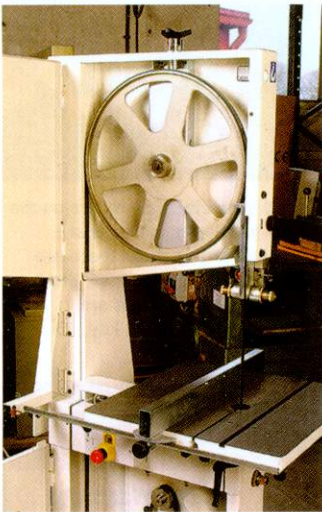
Blade choice is often said to be the most important consideration when using a bandsaw. Certainly, most machines come fitted with blades that are fine for cutting firewood but not much else. But even the best blade will perform poorly if the bandsaw isn't set up properly. This means getting blade tension and tracking right, as well as setting the upper and lower blade guides correctly (see page 44).

Many thanks to **Trucut** for supplying bandsaw blades for this test.
Info ☎ 01989 769371

Guide to the bandsaw



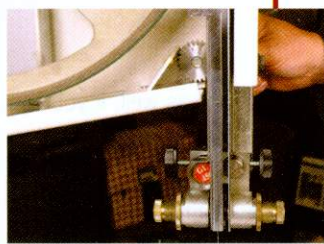
- **Tension:** Adjusted to suit the width of the blade fitted, via a top-mounted knob. Some saws have indicators or scales for guidance.
- **Saw featured:** MINI MAX S45 (tested GW 130)



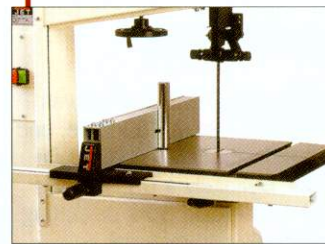
- **Bandwheels:** Cast iron on heavier saws, alloy on lighter ones. Rubber tyres are bonded to the wheels, which should be balanced.
- **Saw featured:** MINI MAX S45 (tested GW 130)



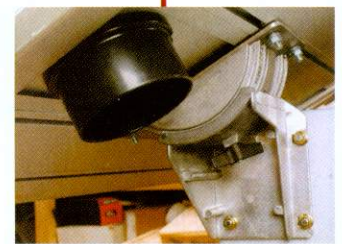
- **Speed:** Some saws are two speed, selected by changing the drive belt on the lower bandwheel from one pulley to another.
- **Saw featured:** ELEKTRA BECKUM BAS 500 (tested GW 130)



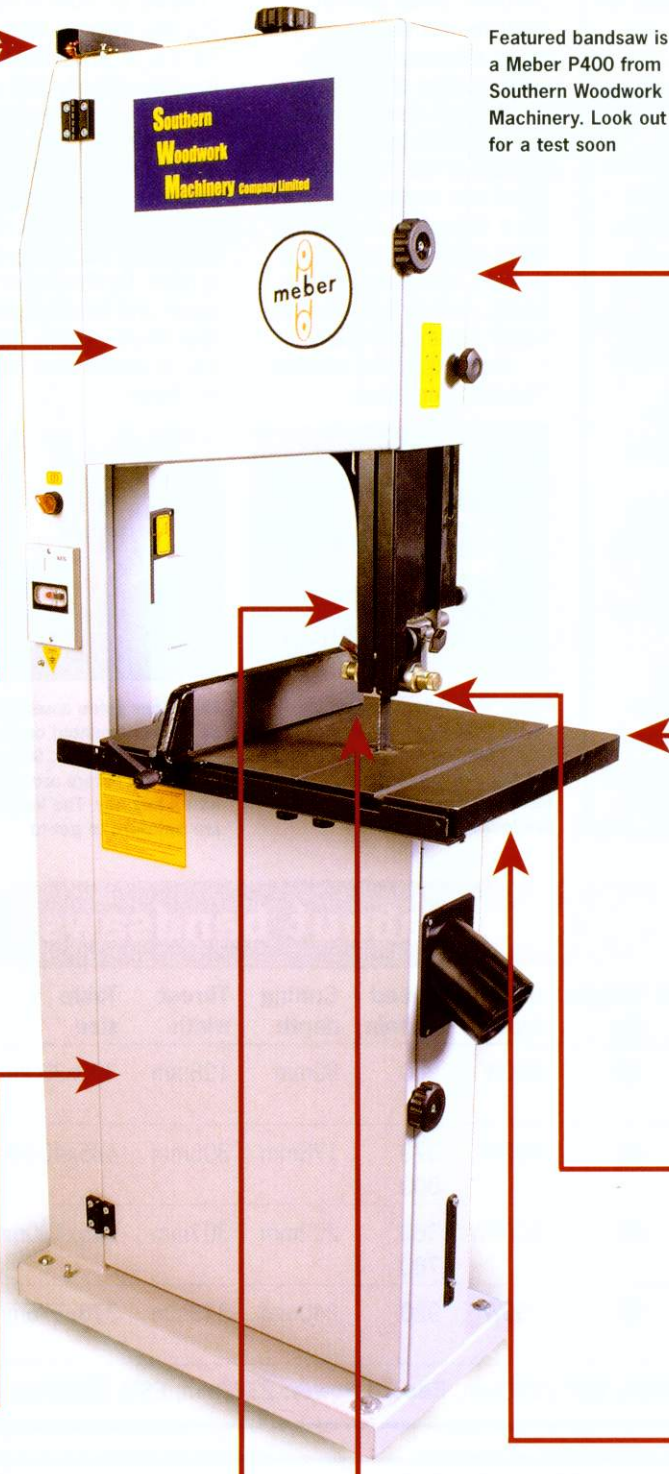
- **Guards:** The upper blade guard has a rise and fall action, operated by a side or rear knob. It should be set just above the work.
- **Saw featured:** MINI MAX S45 (tested GW 130)



- **Fence:** Essential for accurate ripping, slicing veneers, cutting tenons etc. Shown is a removable post for better resawing control
- **Saw featured:** JET JWBS-16 (tested GW 130)



- **Table tilt:** Mounted on a single or double trunnion, most tables can be tilted to 45° to the right. A post enables it to be calibrated at 0°
- **Saw featured:** ELEKTRA BECKUM BAS 500 (tested GW 130)



Featured bandsaw is a Meber P400 from Southern Woodwork Machinery. Look out for a test soon



- **Tracking:** Blade should ideally run centrally on each bandwheel tyre. The top wheel is adjusted with a rear knob and locking lever.
- **Saw featured:** ESY H360 (tested page 48)



- **Mitre guide:** Runs in a slot in the table. For crosscutting wood accurately at 90° or any angle up to 45°, left or right.
- **Saw featured:** ELEKTRA BECKUM BAS 500 (tested GW 130)



- **Blade guides:** Fitted above and below the table, guides may be roller bearings, solid posts or fine screw adjusters.
- **Saw featured:** JET JWBS-16 (tested GW 130)

10 reasons why you need a bandsaw

- **Cutting curves:** The best machine for cutting shallow or tight curves, depending on blade width.
- **Ripping:** With a decent capacity you can rip deeper than on a table saw.
- **Crosscutting:** Most bandsaws have a sliding mitre guide, which can be adjusted between 0° and 45°. Ideal for dovetails.
- **Conversion:** Build a suitable cradle and you can rip small logs down to size.
- **Angled cuts:** You can tilt the table, so bevelled cuts are easy. You may need to add a deep facing to the rip fence.
- **Joints:** A fast way to cut and trim tenon cheeks, shoulders and dovetails.
- **Metals & plastics:** You're not restricted to wood. Non-ferrous metals and plastics can be cut at a slow speed.
- **Veneers:** Fitted with a wide blade carefully adjusted, you can cut your own veneers to about 1mm thick.
- **Noise:** A bandsaw is quieter than most other machines in the workshop.
- **Safety:** With little chance of kickback and guards properly adjusted, a bandsaw is arguably safer than most machines.

Tension, tracking and blade guides

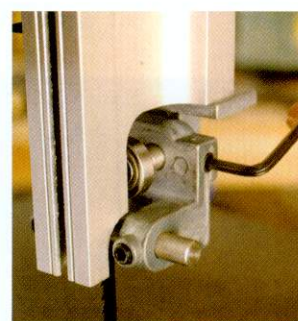
For a bandsaw to cut properly, blade tension, tracking and guides all need to be adjusted correctly. First slacken off the guides.

Tension must now be set, adjusted by a knob on the top of the machine. A good rule of thumb is to aim for a deflection of about 6mm either way when you press a thumb against the blade, midway between the upper guides and table.

Next adjust the tracking. The blade on most

bandsaws should run centrally on both wheels. The top wheel is tilted slightly to adjust this tracking, usually with a knob at the back of the machine.

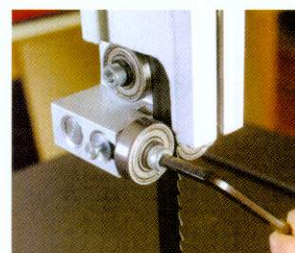
Finally you can set the blade guides. Insert a piece of paper between each side guide and the blade, then tighten up the knobs or screws. Do the same for upper and lower guides. On rear thrust wheels, leave a gap of about 1mm behind the blade.



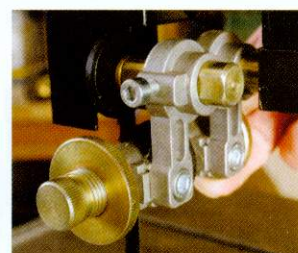
No side rollers on the Charnwood model, although the steel side rods are easy to adjust with a hex key. There are thrust wheels top and bottom



Upper side rollers are eccentric on the ESY machine, and easy to adjust with a hex key. Beneath the table brass rods are used instead. Both rear thrust wheels are locked with knobs



The upper guide assembly on the SIP saw is mounted on the aluminium toolpost. Side and rear thrust rollers are adjusted with a hex key. The lower guides are awkward to get to



The sizeable guide rollers on the Record Power bandsaw are fastest to adjust. As these are threaded you can tweak them easily. Thrust wheels are adjusted with a hex key

What you need to know about bandsaws

Make	List price inc VAT	Typical price	Weight kg	Motor input	Speed m/min	Cutting depth	Throat width	Table size	Blade range	Noise db(A)	Warranty
Charnwood W711	£99.00	£99	22	250W	900	80mm	198mm	300x300mm	3 to 10mm	72	2 years
SIP 01486	£229.95	£229	65	800W	370/800	178mm	305mm	485x402mm	6 to 15mm	69	2 years
Record Power BS300	£349.00	£349	60	1000W	360/780	202mm	307mm	545x400mm	6 to 15mm	68	5 years
ESY H360	£747.89	£747	80	750W	920	240mm	343mm	378x376mm	3 to 25mm	79	1 year

Blade lengths - **Charnwood:** 1400mm, **SIP:** 2240mm, **Record Power:** 2370mm, **ESY:** 2600mm

VERDICT • Bandsaws

Although not a comparative group test, we tested each bandsaw with the same timbers. Each machine was fitted with a new skip tooth 10mm blade from Trucut.

With such a small motor it's not surprising the **Charnwood W711** struggled ripping 38mm oak and 43mm thick sapele. Hardwoods needed to be fed

really slowly, although it was fine with 19mm thick pine, and coped with tight curves quite well. Definitely a DIY machine for small-scale work or cutting relatively thin material.

At less than £250 the **SIP 01486** has good capacities and two speeds. It ripped and crosscut the pine, oak, and sapele easily. It was fine

ripping 70mm as well. If you need a cheap machine but won't be running it for hours on end, you could do a lot worse.

I'd pay another another £120 for the **Record Power BS300** bandsaw, though. It didn't struggle cutting any timber and is simple and fast to adjust. It has two speeds and the quick-release blade

tension system is excellent.

At the top end is the **ESY H360** machine. Capacities are greater than the others, and it certainly did not falter cutting any material fed through it. It's the sort of bandsaw that would sit quite happily in a small professional workshop. Ideal for ripping deep hardwoods as well as for finer cutting tasks.

Charnwood W711

£99.00 ☎ **01530 516926**

www.charnwood.net

Charnwood's W711 model must be one of the smallest bandsaws we've ever tested. Small capacities mean its appeal will be limited, but if you make models, dolls houses or only need to cut small items, then this saw is worth a closer look. If space is tight you can store this machine in a cupboard or even under a bench.

Built in the orient, the W711 has a powder-coated steel casing and doors. A bench-mounted machine, four holes are provided in the base to fit this on your own stand.

You'll need a screwdriver or coin to unlock both upper and lower doors, which open independently. There is no micro-switching, which is a bit surprising these days. Bandwheels are rather crude cast alloy, 203mm in diameter. These are balanced with simple steel clips, rather like car wheels. A brush is fitted to the lower wheel.

It's good to find a cast iron table at this price, although it's coarsely ground. Size is 300x300mm and working height 297mm. A slot on the right accepts a plastic mitre guide, which is not brilliant. The rear trunnion is cast alloy, and a single turnbutton releases the table for tilting, not the smoothest. A protractor scale shows 50°,

though it will only tilt to about 46°, which is still more than most bandsaws. There's a zero calibration screw.

The thin box section aluminium rip fence slides on an extruded rail across the front of the table, while a steel arm clips over the rear edge. Locked with a toggle lever, you need to check the fence is square when resetting.

For blade access you remove four bolts underneath the rail. Spanner and hex key are included. The upper blade guard is aluminium, and adjusted with a rear knob. I found this got stuck at its upper setting, due to a bolt through the rear casing a tad too long. Not a big problem. The lower guard swivels out of the way for blade changing.

Rated at 250W, the motor adequate for capacity. It's activated by an NVR switch with rubber-shrouded buttons.

Upper blade guides consist of steel pins, adjusted with a hex key. This is quick, and the same method is used for the rear thrust wheel. Lower guides are similar, but you need to tilt the table for access to the thrust wheel, which is awkward.

Tension is set with a top-mounted knob, with no graduations. Tracking is with the standard rear knob and locking device.



**UNDER
£100**

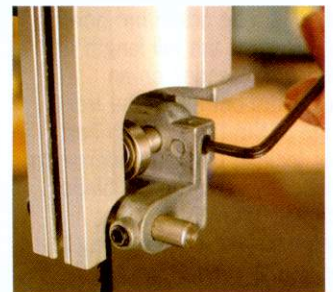
GW verdict

- ➕ Cast iron table. Price
- ➖ Limited capacities

Value for money
Performance



Upper and lower blade guides are adjusted with a hex key



Rise and fall of the upper guard is operated with a rear knob



As the machine is so small the tension knob is easy to reach



The Charnwood is equipped with a cast iron table, surprising for a bandsaw under £100

SIP 01486

£229.95 ☎ **01509 500359**

www.sip-group.com

Not so long ago it was hard to find a budget bandsaw with cast iron table and decent cutting capacities. Now SIP have come along with three Asian machines, all under £300. The 01486 is their mid-range model and has two speeds. A steel cabinet stand costs an extra £xxx. This has a door and provides useful storage space.

The steel casing and doors have a metallic paint finish. These open independently and are a bit of a pain, as you need a screwdriver or coin to release them. Not a bad idea with kids around, though. Hinges are steel, and there are micro-switches top and bottom.

Bandwheels are 315mm cast alloy, with steel clips for balancing and thin rubber tyres.

The table measures 485x402mm and is rather coarsely ground. It has T slots on each side for the mitre guide. Working height is 1070mm from the floor.

At the back is a big alloy trunnion, with a single thumbscrew for locking the table tilt (up to 45°).

The extruded aluminium fence is a bit crude but does its job. Running the full length of the table, it slides on an aluminium bar along the front edge of the table, which has four locking buttons underneath. These are released for blade access. There's a metric/Imperial scale along the top of the bar.

Motor rating is 800W, just over 1hp. Speed is changed

manually. You rotate a cranked handle on the side of the casing to release tension on the lower pulley. This enables you to move the belt between pulleys, then re-tension. A diagram inside the door displays the two belt positions and relative speeds of 370 and 800m per minute.

Three hex keys are supplied for adjustments. Upper blade guides consist of a pair of side rollers and rear thrust wheel, all mounted on an aluminium block. Lower guides are similar, but fiddly to adjust.

I found the tension knob up top quite stiff to rotate, but at least there's an indicator window with pointer at the rear of the machine. Blade tracking is via a standard rear knob and locking lever.

The upper blade guard consists of an aluminium block, with a rear knob operating its rack and pinion movement, with a side locking knob. The hinged lower guard is attached to the bottom door.

At less than £250 this is a budget bandsaw. Don't expect it to cut for hours on end at maximum depth capacity. But treat it with respect and it should be fine. Like all SIP products it has a two year warranty.

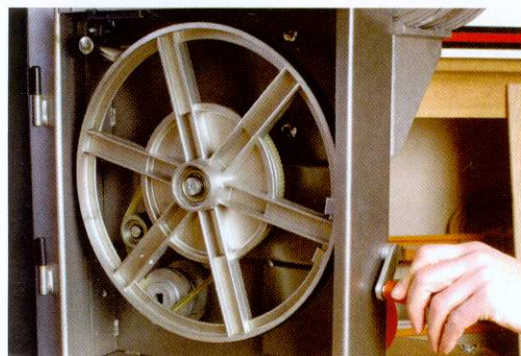
GW verdict

- ➕ Two speeds, two year warranty
- ➖ Fiddly lower blade guides

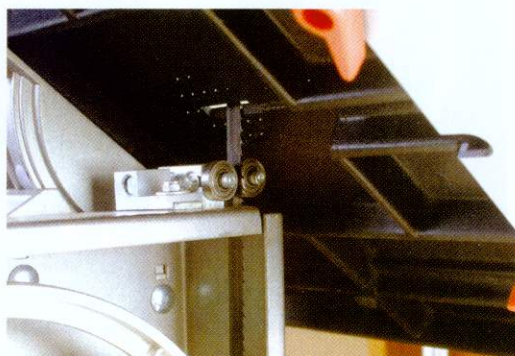
Value for money
Performance



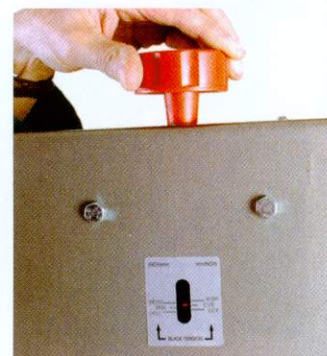
There's a single plastic thumbwheel for locking the table. Tilt action is quite rough, but it works reasonably well



To adjust cutting speed you slacken and move the drive belt from one pulley on the bandwheel to another



Blade guide rollers are adjusted with a hex key. They work well once set, but lower ones are tricky to reach



A tension indicator removes the guesswork when changing a blade

Record Power BS300

£349.00 ☎ 0114 251 9102

www.recordpower.co.uk

**UNDER
£350**

Record Power have been through some difficult times lately, but have emerged with a brand new range of bandsaws. The two speed BS300 model is built in Asia and has some nice features, such as a quick-release blade tension system and rack and pinion table tilt.

It's equipped with a 1000W motor, and the NVR switch can be padlocked off if necessary. Speeds of 360 and 780m/min are changed manually, like the SIP saw. The belt is moved from one pulley to another after releasing tension with a side handle. There is no label to tell you which pulley speed is which, though.

The heavy steel casing and bandwheel doors have a powder coated finish. Large cam-action knobs mean doors are quick to release. They open independently and both are micro-switched.

Bandwheels are 315mm cast alloy, with steel clips for balancing and rubber tyres.

The cast iron table measures 545x400mm and has T slots each side for the mitre guide. Working height is 996mm from the floor. The fence slides on an extruded aluminium bar along the front edge, secured with four knobs underneath. A steel bar at the back enables the end of the rip fence to clip on.

Two steel trunnions secure the table, and a large soft-grip

knob operates the smooth rack and pinion tilt action. A Bristol lever locks the tilt (45° to the right and 10° to the left).

The extruded aluminium fence is 60mm high and locks positively. A substantial alloy mitre guide is included, and you can slide its facing either way. Although not sero indexed, the protractor scale indicates up to 60° each way.

Upper blade guides are threaded side rollers, fast to adjust. Both thrust wheels are set with a hex key, as are the lower guides. The flimsy steel lower blade guards can be bent too easily, though.

The substantial upper guard has smooth rack and pinion action via a handwheel. It's locked with a rear knob.

Once you've set the tension and guides properly, changing the blade is a cinch (assuming it's the same width). Flipping a lever means you don't need to bother with the top-mounted tension knob. An excellent system.

For £350 the BS300 is a serious mid-range bandsaw with plenty of power. Until September the wheeled floorstand is included, after that it will cost about £50. Warranty is five years.



GW verdict

- ⊕ Fast blade change. Two speeds
- ⊖ Lower blade guards flimsy

Value for money
Performance



To release blade tension you swing over a lever at the back



A steel pointer behind the bandwheel indicates the correct blade tension for a range of sizes



The fence has a hairline magnifier, though the metric/imperial scale was 4mm out...



Bristol lever and tilt knobs are soft-grip and easy to reach

ESY H360

£747.89 ☎ **08700 500535**

www.southernwoodwork.co.uk

There are still plenty of woodworkers who prefer to buy a European-built machine rather than something oriental, and Southern Woodwork Machinery cater for those buyers. The ESY range of bandsaws is Italian, a country famous for its industrial woodworking machines.

We tested the H320 back in GW 133. This time it's the turn of big brother, the H360. Design and construction is similar, although obviously the cost is greater.

With a tough powder-coated finish, casing, doors and floorstand are heavy steel. You can bolt the machine in place if necessary. Heavy cast bandwheels are 355mm in diameter, the lower one with an adjustable brush. The tension spring and mechanism behind the upper wheel is certainly heavy duty.

An NVR switch box is mounted on the neck of the machine, angled for easy access. Buttons are dust shrouded and a three pin socket is fitted. The 750W motor takes about five seconds to get to full speed, ten to reach standstill.

Measuring 376x378mm, the cast iron table has a steel plate on the left, adding

88mm in width. There's a mitre slot to the right, though a sliding fence will cost you an extra £16.58. Working height is 998mm from the floor. Table tilt is 20° to the right and -5° to left.

The aluminium fence runs the full depth of the table. It's 67mm high and can be adjusted backwards to suit the workpiece. Locking is with Bristol levers, and it slides on a steel bar at the front of the table. This has a metric and Imperial scale. Underneath the table is an offset block for calibrating the bar. Adjusted with a hex key, you can tweak the fence for parallel.

The upper guide assembly moves backwards or forwards on a rod, with hex key adjustment. Side roller guides are eccentric and simple to set with thumb knobs. Although stiff on the test model, a squirt of WD40 soon gets rollers running freely. Lower guides consist of two brass static rods, set with hex screws. Rear thrust wheels are locked with knobs.

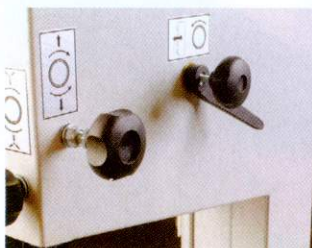
Changing the blade is simple, with guides quick to reset and tensioning fast. Access is by slackening three knobs beneath the table. The top-mounted tension knob is graduated for guidance.



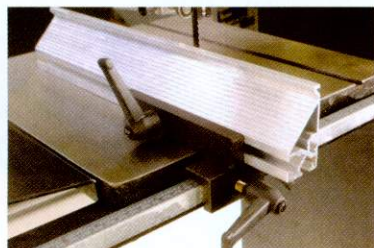
GW verdict

- ➕ Smooth table tilt. Blade guides
- ➖ Small door knobs

Value for money ●●●●○
Performance ●●●●○



Blade tracking is adjusted with a rear knob and locking lever



The fence is substantial and can be flipped for cutting thin material

To tilt the table you slacken off a front Bristol lever, rotating a large rear knob to operate the smooth rack and pinion action (left). Tilt is 20° to the right and -5° to left.



Upper and lower doors are linked and locked with a pair of plastic threaded knobs. Micro-switching means you cannot activate the saw with the doors open. Hinges are rigid plastic (right)

At a glance pull-out plans sheet

Traditional workbench

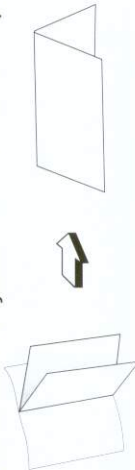
Fold along this line

Bench features

- Front and tail vices
- Underframe storage drawers
- End drawer
- Tool recess

Folding instructions

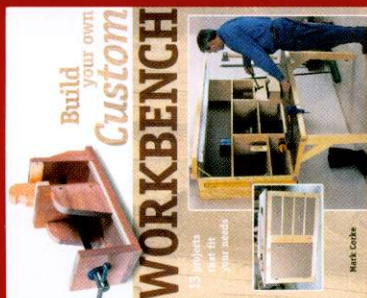
Step 1. Pull centre section from magazine in half horizontally



Build Your Own Custom Workbench

joined *Good Woodworking*. For those without the time or inclination to spend on making a bench, his book is perfect. There is no 'rocket science' joinery involved; with the exception of one hand-cut and one machined dovetail, it focuses on housings, halvings and dowels as the main construction joints.

Despite the simplicity of some of the projects, there are some useful benches and saw horses in here, proving that you don't need to be a master carpenter or joiner to get decent results. There are 13 quite diverse projects, including a shaving horse, tool tote and assembly bench, and I particularly liked the clever use of laminating by Mark to



By Mark Corke

Price: £15.99

ISBN: 1 55870 678 x

Published by: Popular Woodworking Books

Many readers will recognise the author, Mark Corke, who was Technical Editor here for several years before I

achieve a mortice and tenon leg construction for the traditional workbench project.

This isn't a book that will tax the brain, but nor is it meant to be. A bench or horse is a utility to be used, and this is made very simple here by making good use of easy construction techniques, with clear informative photography and illustrations, allowing you to get on with the enjoyment of woodwork itself.

Andy King

Build Your Own Custom Workbench

Words

Drawings

Photography

OVERALL VALUE



Special Readers Offer

Readers can save money by ordering **Build Your Own Custom Workbench** from the publishers, David and Charles, for the special price of £14.99 (rrp £15.99), plus FREE p+p (UK mainland only). To order, please call the David & Charles Hotline on 01626 334555 and quote code Y217.

Readers may also be interested in the **Craftsman Books Society**, a book club run by David and Charles that specialises in woodwork books). The magazine for the club is available through the Craftsman Book Society. Please call 0870 4422033 for the latest offers."

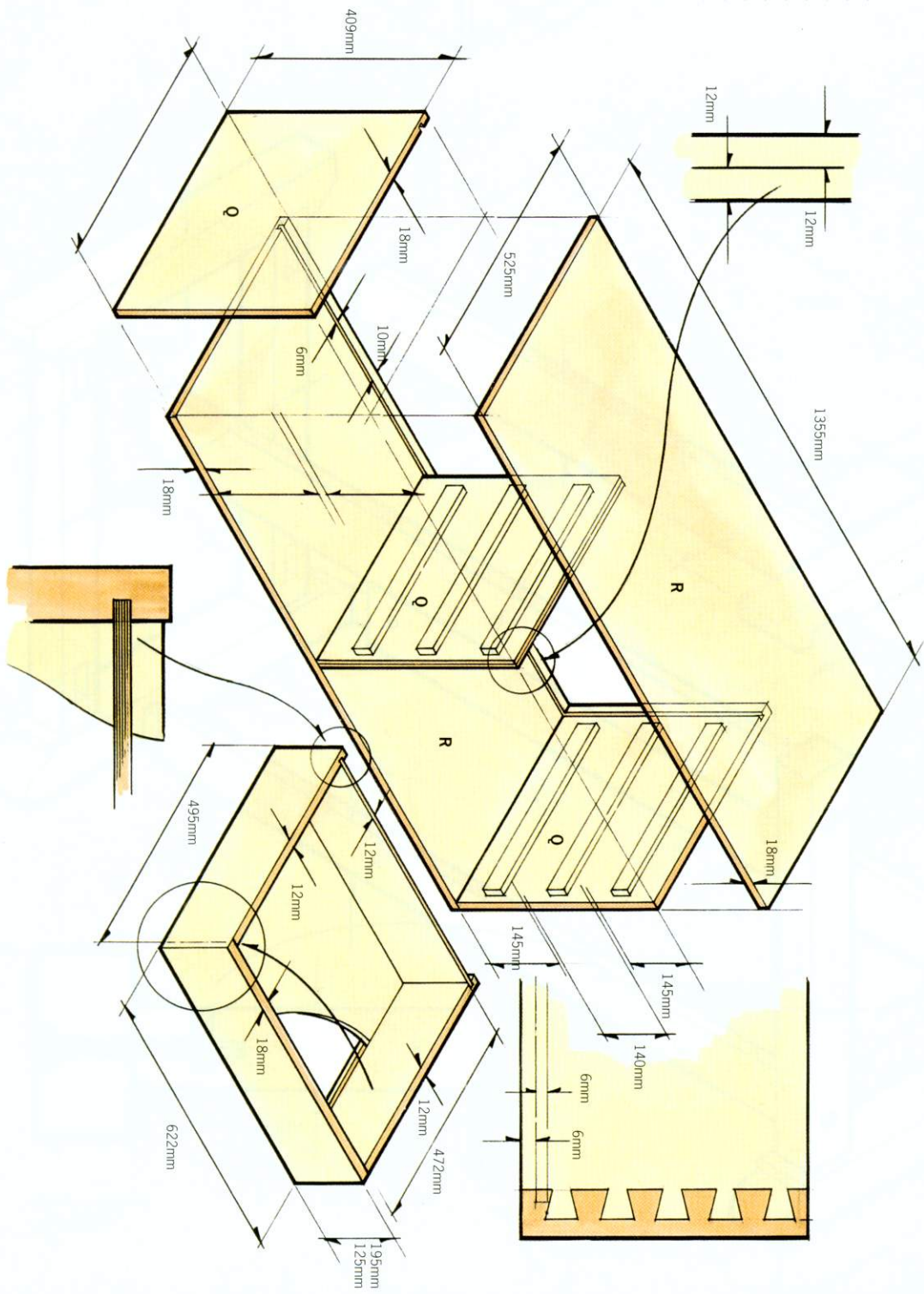


Cabinetmakers bench: Drawers carcase

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Dog hole strip	2	Beech	1560mm	112mm	66mm
B Top slab	3	Beech	2035mm	125mm	60mm
C Top slab inside tray	1	Beech	2035mm	112mm	40mm
D Top slab outer tray	1	Beech	2035mm	112mm	20mm
E End cap	1	Beech	704mm	112mm	55mm
F End cap	1	Beech	572mm	112mm	55mm
G Tool tray	1	Plywood	2035mm	165mm	12mm
H Base frame feet	2	Beech	700mm	90mm	75mm
I Base frame top rails	2	Beech	630mm	65mm	60mm
J Base frame legs	4	Beech	700mm	95mm	65mm
K Base stretchers	4	Beech	1400mm	85mm	30mm
L Tool tray ramps	1	Plywood	220mm	150mm	12mm
M Tail vice	2	Beech	587mm	66mm	112mm
N Tail vice	2	Beech	312mm	60mm	112mm
O Tail vice	1	Beech	580mm	66mm	25mm
P Front vice	1	Beech	525mm	120mm	80mm
Drawer housing					
Q Carcase sides	3	Ply	409mm	525mm	18mm
R Carcase top & bot	2	Ply	1355mm	525mm	18mm
S Carcase back	1	Ply			
T Large drawer sides	4	Ply	505mm	195mm	12mm
U Large drawer back	2	Ply	610mm	195mm	12mm
V Large drawer front	2	Ply	610mm	195mm	18mm
W Large false fronts	2	Beech	638mm	215mm	38mm
X Small drawer sides	6	Ply	505mm	125mm	12mm
Y Small drawer back	3	Ply	610mm	125mm	12mm
Z Small drawer front	3	Ply	610mm	125mm	18mm
AA Small false fronts	2	Beech	638mm	145mm	38mm
BB Small false fronts	1	Beech	638mm	140mm	38mm
CC Drawer bottoms	5	Ply	484mm	600	6mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.



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File it



Filing cabinets don't have to look utilitarian. These decorative units from **James Hatter** are perfect for a home office and very easy to make

Keeping track of everyday bills and records can be quite a chore, it seems that every time post drops through the letterbox yet more documents have to be kept for action and reference.

I wanted this filing cabinet to be a little more decorative than is usually expected for the job. The result is a cabinet with a Shaker feel that has four large drawers capable of storing A4 or foolscap suspension files and three smaller drawers for A5 documents. These are arranged in three bays. The top and sides are stained and varnished whereas the drawer fronts are painted.

The side frames are pine, with two plywood panels, jointed with loose tongues. The carcass top uses a frame also made of pine, while the bottom panel is 18mm plywood, with a pine front rail. The top frame and bottom panel are attached to the sides using size 10 biscuits. Two 15mm MDF divider panels separate and support the drawers, and there is a 6mm plywood back. The solid pine top is made up by edge



joining prepared pine boards.

The drawers are 12mm ply with 6mm bottoms, and have a 12mm MDF panel attached to the front. Bottom fit runners provide smooth operation, and allow a drawer to be opened without fear of it tilting. These require 12mm clearance each side, giving a total of 24mm clearance between the drawer width and the bay width.

The larger drawers have rails fitted to house either A4 or foolscap suspension files. A single brass knob is attached centrally to each drawer.

Making the Cabinet

1 The 28mm thick top is made by edge joining four 1300mm lengths of 28x110mm pine. Cut four lengths and lay them edge to edge on a flat surface. To make the resultant top more stable, alternate the growth ring direction. Check that the joints between the boards will be flush. Use a joiner to correct if needed. I found that the purchased PAR boards gave a satisfactory result without further working.

Mark the matching positions for size 20 biscuits, and number or

PROJECT GUIDE
Difficulty
Intermediate
Time
50 hours
Type
Furniture
Cost
£120

Constructing the side and top frames



01 Rout the timber for the carcass frames with 6mm panel grooves. The rear stiles also have a rebate for the back



02 Cut the rails to length and groove the ends similarly for 6mm loose tongues to joint the frames



03 Cut the panels to length then glue and assemble the side frames. Check these are flat and square



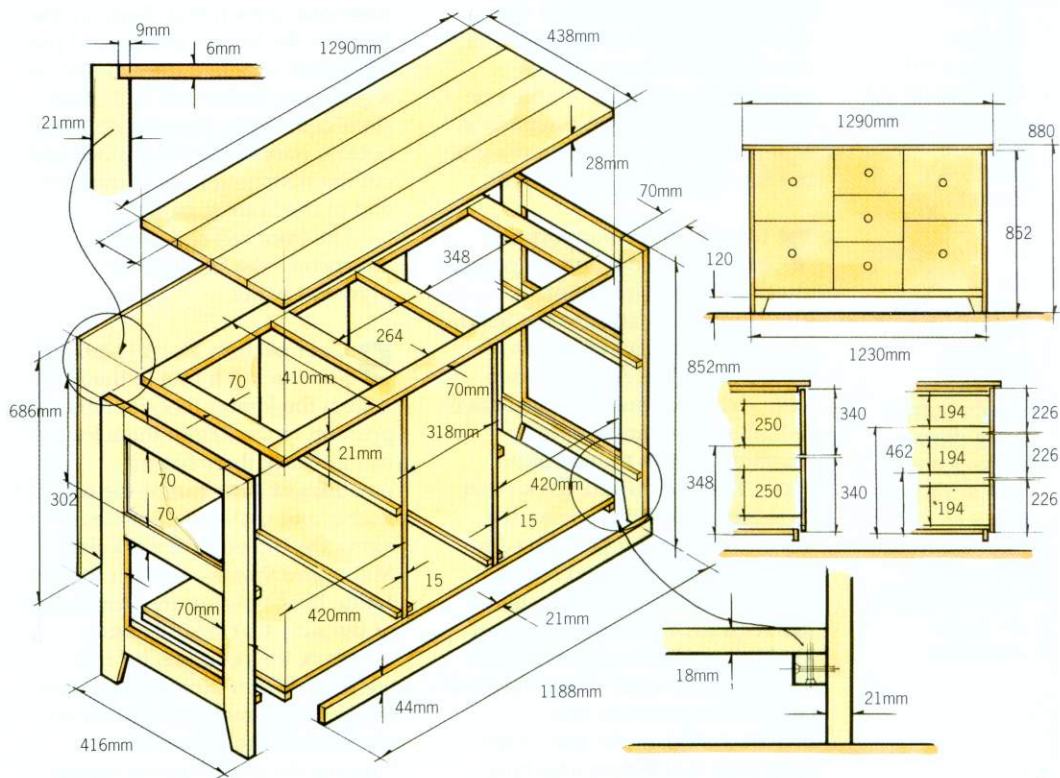
04 The top frame is made up of a similar but panel-less assembly and is biscuit jointed instead of loose tongued

Sand to remove any glue residuals and unevenness; I used a random orbital sander, first with 80 grade grit, then through grades to 320. Cut the top to length, using a radial saw if you have one, or a circular saw and guide. Round over the front and side edges. Give a final sanding then put aside until later.

Assemble the components using biscuits and glue. Check all is square, then clamp. Accurately mark the positions for the divider panels on the centre cross members. Drill four equally spaced 4mm clearance holes and countersink from the top for the screws that will join the top frame to the divider panels.

Cut the groove along one edge

CONSTRUCTION: The carcase details



Cut the panels to size from 6mm plywood. Also cut some 21mm wide strips of 6mm plywood for the loose tongues, and then cut eight 58mm lengths and four 46mm lengths.

4 The bottom of each stile is tapered at an 11° angle on the inside, starting below the bottom rail. This forms part of the tapered leg. If you have cut the panel grooves down the whole length of the stile, as suggested, then you will need to fill in the small amount of groove just below the bottom rail position, where the angle cut is made. Alternatively, you could have stopped cutting

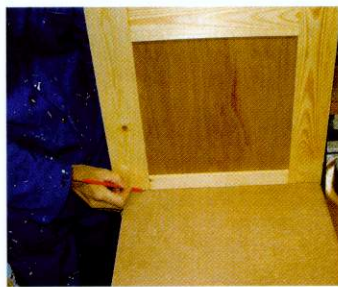
To allow a front and rear tapered leg infill to be attached later, set the biscuit jointer to cut size 10 slots, and the fence to cut mid way in 21mm stock. Cut a slot in the inside of the front and rear stiles, 50mm from the bottom.

6 Lay out the components for each side. Assemble by

Biscuit jointer for carcase and drawer joints plus a **router** with 6mm slotting cutter for the frames. A **table saw**, **radial arm or circular saw** and guide would be handy for cutting panels



05 The bottom panel sits on a support and is also biscuited to the side frames. Index the jointer off the batten...



06 ...then index the mating biscuits from the bottom face. Transfer the centres from frame to panel



07 The front edge of the bottom panel will also need biscuiting to attach a front rail cut to the same length



08 Carcase assembly starts by adding the top frame and bottom panel to the two vertical MDF drawer dividers...

MATERIALS YOU'LL NEED

Timber

James used PAR pine for the carcasses and top, with ply panels and drawers (you'll need an 8x4 sheet of 12mm ply for the drawers. The drawer fronts are MDF

Hardware

8 sets bottom fixing drawer runners and 8 38mm Victorian brass knobs from Screwfix, File runners 400mm lengths 1/2in angle aluminium

applying glue to the loose tongues and appropriate grooves. Join one end of each rail to one of the stiles, insert the panels then join the other ends to the other stile. Check that the rails line up with the appropriate positions marked on the stiles and that the assembly is square, then clamp. When the glue has set, sand the frame smooth.

7 To give added support and fastening to the bottom panel, attach a 389mm length of 21x21mm pine batten to the inside of each bottom rail using two screws and glue. Also drill two 4mm clearance holes in this batten so that screws can be used to attach the batten to the bottom panel. Position this batten so that its top edge is 704mm from the top of the side and its back edge flush with the plywood rebate.

8 The 18mm ply bottom panel requires a 1188mm length of 21x44mm pine, to edge the front. Cut six biscuit slots along the front edge of the plywood and matching slots in the rear of the front pine rail. Before attaching this strip, mark and cut size 10 biscuit slots for the side frame to bottom panel joints. Rest the end of the bottom plywood panel on

the batten that was attached to the bottom rail of each side. Mark three equally spaced biscuit positions at each end. Remove the fence of the biscuit jointer and use the batten attached to each side as a guide to cut the size 10 biscuit slots in the side. Rest the plywood bottom panel on a flat surface and cut the matching slots at the each end of the bottom panel.

The front rail can now be attached to the front of the plywood panel.

9 Cut matching biscuit slots to join the top frame to the sides. Adjust the jointer fence to cut mid position in the 21mm thick top frame. Mark three biscuit positions at each end of the top frame, and matching positions along the top edge of each side. Make sure that the front of the top frame lines up with the front edge of the side. Cut size 10 slots.

Mark the positions for the 664x410x15mm divider panels on the bottom panel, and drill 4mm clearance holes. These panels support the inner drawer runners.

10 Organise a flat surface large enough to allow for the assembly of the carcass. Join one end of each of the divider panels to the top frame, using glue and 3.5x40mm screws. Use the guidelines to locate; error here may cause difficulty with the drawer fit. Join the other ends of the dividers to their positions on the bottom panel.

With the assembly on its back, lift and rest on some 6mm plywood spacers. Next join one of the side panels into position using biscuits and glue. For additional fastening, use two 4x45mm screws through the outer member of the top frame and two 3.5x35mm screws through the supporting batten into the bottom panel.

Repeat the procedure for the other side panel.

Apply sash cramps and turn the carcass front down, check that the diagonals are equal and attach the 6mm plywood backing with 20mm panel pins.

11 The tapered legs are repeated at the front and the back of the cabinet by attaching infills. Use two 250mm lengths of 21x44mm pine and first cut a 11° taper at each end, then cut to length so that the front ones fit between the bottom of the bottom panel front edging strip and the bottom of the side panel legs. The rear ones fit between the bottom of the bottom panel and the bottom of the side edge. You will need to notch the rear infill to fit over the end of the side batten. Cut a size 10 biscuit slot in each leg infill to match that cut previously in the side panel. Attach each infill using a size 10 biscuit and glue. Clamp until the glue sets. Drill six 5mm holes in the top frame and elongate them to allow for any natural movement in the top panel.

Drawer Carcasses

12 The two sizes of drawers have the same construction method. Four larger drawers will house either A4 or foolscap suspension files, while three smaller drawers will house A5 wallets. 12mm plywood is used for the sides and 6mm plywood for the bottoms.

For each larger carcass, cut two 400x250mm pieces for the sides, one 372x250mm piece for the front, and one 372x236mm for the back. Cut a 6x6mm groove along the front and side pieces so that the top edge is 236mm from the top edge.

Size 10 biscuits join the components together. Mark for three matching slots to join the front to each side and two



Carcass assembly and drawers



09 ...then adding the two end panels. These screw and biscuit into place from inside the carcass



10 The back drops into the rebate formed in the rear edges of the carcass and squares everything up



11 The tapered feet are sawn directly from the solid on the side panels but require the panel groove to be filled



12 For the front and back elevations the feet are simply short shaped sections planted on and biscuitied

matching slots to join the back to each side. The 6mm plywood bottom is 382mm x 393mm.

The smaller drawers require two 400x194mm sides, a 270x194mm front, and 180x270mm rear. The 6mm groove is positioned 180mm from the top edge of the drawer side. The 6mm plywood bottom is 280x393mm. Drill four 4mm clearance hole in the front piece of each carcass; these will be used to attach the MDF drawer front.

13 To assemble each drawer, lay one of the sides flat and insert the edge of the plywood bottom piece into the groove and line the back edge with the back edge of the side piece. Use size 10 biscuits and glue to join front piece to the side. Do the same for the back. Put biscuits and glue in both the front and rear slots of the other side piece and join to the edges of the front and rear pieces. Clamp the joints and check the assembly is square. Pin the back of the ply bottom with 20mm panel pins.

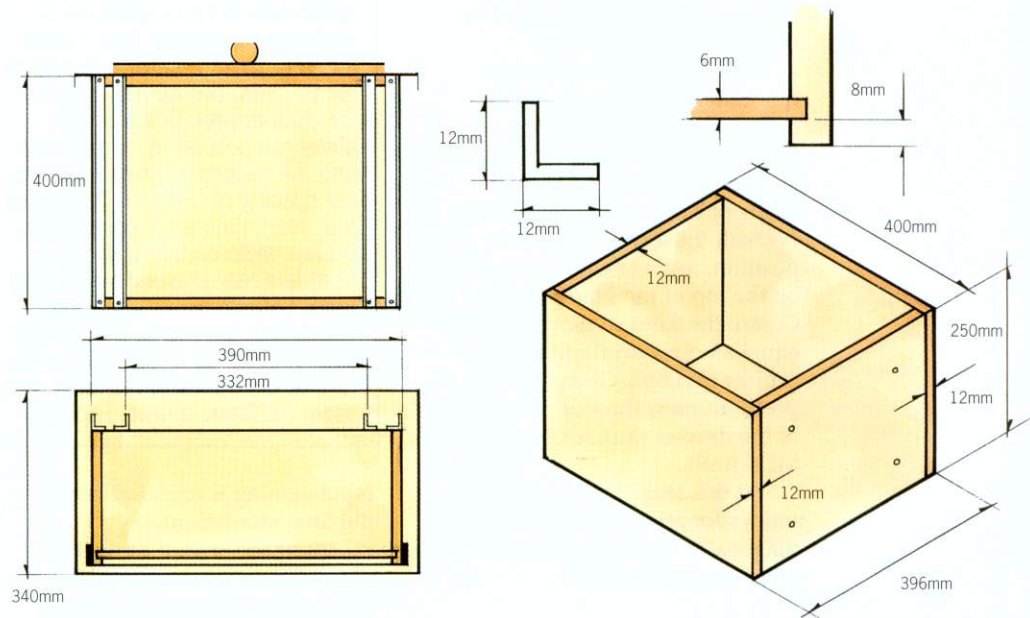
Fitting the Drawers

14 The drawers use 400mm long, bottom fitted drawer runners. Attach the moving part of the runner to the bottom of the drawer sides using 3x12mm screws. The fixed part is attached to the sides of the drawer bays.

An accurate method of fixing the drawer runners is to cut ply spacers. You need three different lengths, namely, one 462mm, one 384mm and one 234mm. Make the width about 200mm.

To fix the runners for the large drawers, place the 384mm height spacer against the side of the bay, with the bottom of the spacer resting on the floor of the cabinet carcass. Rest the bottom of a drawer runner on the top of the spacer so that the runner front edge is about 3mm in from the

CONSTRUCTION: Large file drawers



front edge of the side. Drill 2mm pilot holes for fixing screws. I found a hinge sitting drill useful. Repeat for the matching runner on the opposite side of the bay.

The lower drawer runner is spaced 6mm above the floor of the cabinet, so lay a piece of 6mm plywood on the floor of the cabinet and rest the drawer runner on this. Attach as above.

The smaller drawers are fitted to the centre bay. Position the top runners 462mm above the floor of the cabinet, the centre runners are 234mm above and the lower runners are 6mm above. You may need to have the front edge of the lower runners in a little more than 3mm so that the attaching screws do not clash with those of the runners in the outer bays. Test fit each drawer, and identify each drawer position.

15 The drawer fronts are 12mm MDF, attached to the



front of their carcasses using four 3.5x20mm screws. Each large drawer requires a 340x437mm piece, while smaller drawers are 226x331mm. Cut four large drawer fronts and three small fronts. Round off the edges using part of a 6mm round over cutter. Mark the centre point of each front and drill a 5mm clearance hole for the drawer knob.

Painted drawer front against natural timber can look very effective



13 The top is made up from a series of narrower boards biscuitted and glued. Plane smooth and cut to length



14 Drawer carcasses are biscuitted plywood. Make sure the sides overlap the back and front for strength



15 The back board is cut narrower to allow the bottom panel to be slid into its grooves from the rear



16 Standard metal drawer runners require 12mm clearance between carcass and drawer each side

16 It is best to temporarily pre-assemble the drawer fronts first then remove them for the application of the paint finish. Alignment is greatly assisted by using 2mm thick spacers.

Clamp a length of straight timber to the front rail of the bottom panel so that its top edge is 10mm below the floor. This will give the guide for the bottom edges of the lower drawer fronts. With all the lower carcasses in position, rest a small drawer front on the top of the guide timber. Centre the front so that there is an equal amount overlapping the cabinet dividers. Clamp in this position screw through the front of the drawer carcase into the MDF front.

At this stage I used just two screws for attachment, positioned diagonally. This will allow the other two to be used if

File suspension rails

The large drawers are fitted with metal rails to carry either A4 or foolscap suspension files. I used 12.5x12.5mm L shaped aluminium for the rails, two 400mm lengths for each drawer. Drill a 3.5mm clearance hole 6mm in from each end. A4 suspension files require a rail spacing of 332mm. To achieve this, mark the centre point of the drawer width on the tops of the front and rear plywood sides, then mark 166mm either side of the centre line and line up the upright side of each rail to this. Attach the rails to the front and rear side tops using 3x20mm screws. Foolscap

files require a rail spacing of 390mm. For this spacing, attach the rails along the sides of the drawer with the upright about 3mm in from the side edge of the drawer.



CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Top board	4	Pine	1300mm	110mm	28mm
B Top frame rail	2	Pine	1188mm	70mm	21mm
C Top frame cross	2	Pine	270mm	70mm	21mm
D Top frame cross	2	Pine	270mm	44mm	21mm
E Side stile	4	Pine	824mm	70mm	21mm
F Side rail	6	Pine	276mm	70mm	21mm
G Upper side panel	2	Plywood	252mm	296mm	6mm
H Lower side panel	2	Plywood	302mm	296mm	6mm
I Loose tongues	8	Plywood	58mm	21mm	6mm
J Loose tongues	4	Plywood	46mm	21mm	6mm
K Divider panel	2	MDF	664mm	410mm	15mm
L Bottom panel	1	Plywood	1188mm	389mm	18mm
M Bottom front rail	1	Pine	1188mm	44mm	21mm
N Bot support batten	2	Pine	389mm	21mm	21mm
O Front & rear leg infill	2	Pine	250mm	44mm	21mm
P Cabinet back panel	1	Plywood	704mm	1210mm	6mm
Q Large drawer side	8	Plywood	400mm	250mm	12mm
R Large drawer front	4	Plywood	372mm	250mm	12mm
S Large drawer rear	4	Plywood	372mm	236mm	12mm
T Large drawer bottom	4	Plywood	393mm	382mm	6mm
U Small drawer side	6	Plywood	400mm	194mm	12mm
V Small drawer front	3	Plywood	270mm	194mm	12mm
W Small drawer front	3	Plywood	270mm	180mm	12mm
X Small drawer bot	3	Plywood	393mm	280mm	6mm
Y Large drawer front	4	MDF	340mm	437mm	12mm
Z Small drawer front	3	MDF	226mm	331mm	12mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

repositioning is required before the final attachment.

Insert the central drawer and place a 2mm spacer along the top edge of the lower drawer front. Rest the central front on this and centralise, then attach as before.

The lower large fronts are next aligned and attached. Put a 2mm spacer to give the correct gap between the edge of the large drawer front and the small ones fitted. Rest each large drawer front on the clamped guide timber and attach the fronts with screws.

Attach the top small drawer front, using a 2mm spacer and use the access through the top frame to drive in the screws. Finally, attach the remaining large drawer fronts, again using 2mm spacers to get the correct gap.

Remove the spacers and guide timber and check gaps are even. The runners give a degree of sideways movement so expect a slight variation in use. Remove the drawer fronts, remembering to identify them with the relevant drawer carcase position.

your choice to the pine parts of the cabinet. I used an acrylic Liberon Palette wood dye. The first coat was Antique Pine followed by a coat of Light Oak. The dye is brushed on and any excess wiped off with a dry cloth. After denibbing with fine abrasive apply a coat of matt acrylic varnish.

The MDF drawer fronts are sealed with a MDF quick drying sealer, followed by a coat of white acrylic primer/undercoat. For the topcoat, I used a pale primrose colour emulsion. protected by a final coat of clear matt varnish.

Re-attach the drawer fronts using the same method as the pre-assembly; adjust the positions slightly if necessary. A single 38mm Victorian brass knob is attached to each front.

Put the top on to the cabinet carcase, and even up the overhang either side. Attach with six 4x35mm screws through the top frame into the top panel.

NEXT MONTH

Steve Maskery shows how to make a simple but attractive set of nesting tables in oak

Finishing Off

17 Do a final sanding and dust down. Apply a stain of

Fitting the drawer runners and fronts



09 Use spacers to ensure that the carcass runner section is set at the same height (and level) at either sides



10 Runners are generally set flush with the front of the drawer itself but about 2mm back from the carcass edge



11 Use spacers off a cramped-on guide rail to help align the drawer fronts as you attach them to the carcasses



12 Screw the worktop into place from below, but use slotted holes at the rear to allow for a little movement

Scheppach

hms260ci Planer/Thicknesser

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In use the **Scheppach hms260ci** performs remarkably. The motor power and cutter speed are perfectly matched to give maximum efficiency, making for very easy surfacing. The tables are smooth (cast iron) and the guards easily adjusted for safe working. It is when thicknessing that this machine really excels. Instead of the serrated metal feed rollers found on other thicknessers, the **hms260ci** uses rubber coated rollers. This means that no marks are left on the timber by the feed mechanism and consequently very fine cuts can be taken producing a faultless finish.

Scheppach had the foresight to patent this innovation.

To demonstrate further the delicacy of cut available, the adjusting wheel is marked in divisions of 0.05mm. The thicknessing performance is exceptional by normal standards and the secret of this lies in the power feed rollers. Whereas on most machines the in-feed roller is heavily ridged or toothed to grip the work and drive it through the unit against the cutting action of the cutterblock and frictional resistance of the feed bed, on the Scheppach thicknesser, the feed rollers are sleeved with a thick layer of reinforced rubber which is vulcanised and trued on the driving shafts.

This has two significant advantages.

Firstly, the feed rollers grip and drive the workpiece so efficiently that no manual assistance is required even when the machine is working to its maximum capacity.

Secondly, it is possible to make a super fine finishing cut which is a very useful feature indeed when working with difficult and cross graining timbers. (A serrated in-feed roller leaves indentations in the work surface which have to be machined out a certain minimum cut. If too fine a cut is attempted, insufficient stock is removed to take out the feed roller

pressure marks).

Practical Woodworking



Scheppach Guarantee

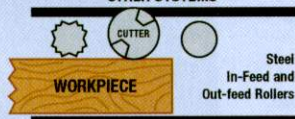
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OTHER SYSTEMS



Serrated in-feed roller leaves indentation marks in the workpiece.

Thickness planers equipped with serrated in-feed pressure rollers always leave indentation marks in the workpiece which have to be removed by sanding. If not removed, the ripples left by the feed roller is exaggerated when the wood is painted or varnished.

THE SCHEPPACH SYSTEM



The patented scheppach system eliminates roller indentation marks and offers other advantages found only on a scheppach planer.

Scheppach planers are equipped with thick rubber sleeves which are vulcanised on to the twin feed rollers. The system totally eliminates every trace of indentation marks which are common with other planers. With the possibility of adjusting the thickness table to within 1/100mm a super fine finishing cut is possible giving the best finish even on wild grain timbers. By positioning the feed rollers immediately adjacent to the cutterblock, pieces as small as 100mm (4") can be thicknessed. It is even possible to thickness down as thick as 3mm (1/8"). With a simple jig it is possible to thickness down to 1mm! No other planer gives you the Scheppach finish.

Model	hms260ci
Dimensions (LWH)	1,115x770x570mm
Table Size	1,040x310mm
Table Height	820mm
Table Thicknessing	430x250mm
Plane Shaft	6,500rpm
Feed Speed	5 m/min
Plane Width	260mm
Thicknessing Height	140mm
Thicknessing Width	250mm
Extraction	100mm Ø
Motor	2.6kw (3.6hp) 230v
Weight	80kgs

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Your Guide to Better WOODTURNING



Ian Wilkie explains just what the

plethora of tailstock centre accessory sets do and which ones you need in your workshop. He also tests a belt and disc sander and uses it to make a toy sword

Dave Roberts dons his ringmaster's garb to show how to turn a segmented jewellery box in the shape of a circus tent!

Turning over the pages

● Tailstock centres: p60 ● Tool test: Robert Sorby Hollow Revolving Centre Set: p62 ● Tool test: Axminster Belt and Disc Sander: p63 ● Dave Roberts: Turn a jewellery box p64

Tailstock centres

When you purchase a new lathe a solid, or revolving, tailstock centre will most likely be included as standard. The quality of these centres is often disappointing especially with the relatively cheap machines and it will not be long before most turners will be looking for a better quality centre. As this is an accessory which will be in constant use it is wise to choose the best centre your budget will stretch to.

Solid Centres

The solid centre is the cheapest option. It should not be discounted because a good quality solid centre is a much better buy than a cheap, inaccurate revolving centre. Because of its one-piece construction it is usually extremely accurate and free from vibration. A solid centre consists of a MT shank to suit the tailstock of

the lathe and a point, usually of 60°. The wood which is supported by the point needs to be lubricated with wax to reduce the risk of burning due to friction and I think this is the main reason for its lack of popularity. In this group we have:

- a simple solid centre.
- a 'half' centre where a portion of the centre is machined away almost up to the point so that a tool can be used to face off the end leaving only some 3mm to tidy up afterwards.
- a ring centre where a ring with a knife edge profile surrounds a point. When pressure is applied from the tailstock the ring forms a circle on the end of the wood and holds it firmly.
- a hollow ring centre has a point which can either be adjusted in length or removed to leave a 9mm hole.



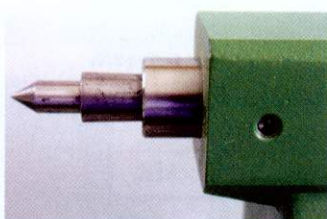
Sorby hollow revolving centre with the tool which is used to remove the interchangeable heads

This allows a long drill to be passed right through the shank for long hole boring the wood being supported by the ring. Lubrication is required otherwise burning will occur.

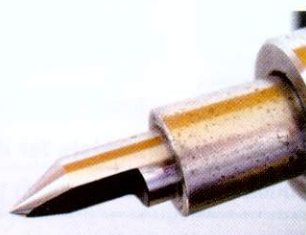
TIP

● Wherever possible use tailstock support, in particular when using small lightweight lathes.
● If your machine has a swivelling headstock make sure that the headstock and tailstock are accurately re-aligned before undertaking between centre turning.
● As with drives take care of your revolving centre. Make sure the MT shank is cleaned regularly with 3 in 1 oil and that the MT hole is free of dirt or shavings. Store your centre in a plastic container on its own, don't just throw it in the drawer if you want it to last.

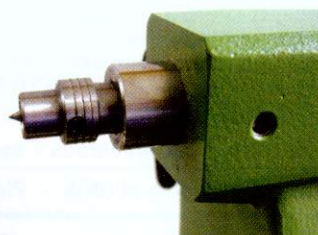
Solid centres



A simple, solid centre



A half centre

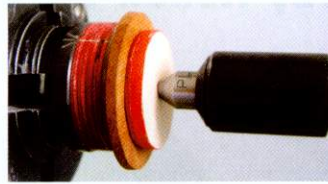


Hollow ring centre with removable pin

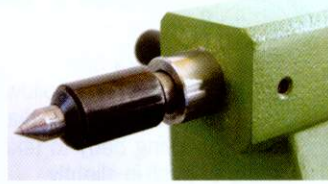
Revolving Centres

The most popular type of centre, the revolving centre has an MT shank with a single ball-race, or several, fitted on the end to support a revolving body with a 60° cone. The object is to allow the supporting cone to rotate with the wood and therefore eliminate any risk of friction burning. Its main problem is the possibility that the body will not run truly or that there is play. If this is the case chatter will occur during turning and it will be hard to produce a good finish.

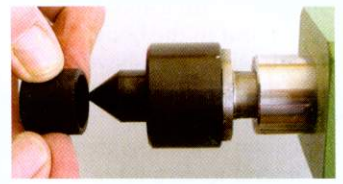
The question to ask yourself when choosing a revolving centre is: What is inside the head? Some cheap centres are so poor that you can detect the side play with your fingers; they usually only contain one ball-race and are virtually unusable. A good quality revolving centre costing in the region of £30 will contain at least two ball-races designed to take the radial loads and one ball-race to take the axial load. Some have replaceable hardened points, such as the Multistar Proman range. Should the point become damaged it's a great advantage to be able to replace the point.



A revolving centre can be tightened against a pressure pad to hold thin sections so the edge can be turned



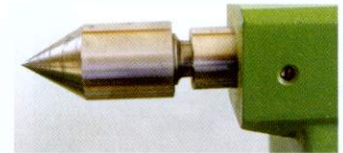
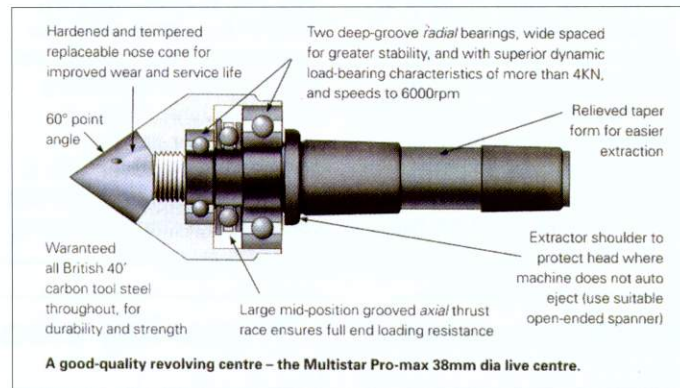
The Planet Slimline revolving centre is a favourite for small work - strong, reliable and with excellent bearings



The Hegner centre has a hollow ring which slides over the revolving point to form a solid ring centre

It is essential, when turning, to try to avoid the tool coming into contact with the surface of the centre but sometimes this is easier said than done! Most revolving centres are designed in such a way to ensure that dust and shavings cannot enter the body. Some, such as the Planet Slimline, have a small diameter

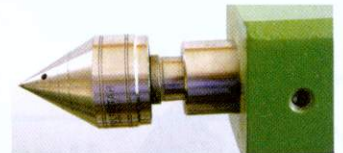
cone which is ideal for miniature work, whereas a larger bodied centre can be useful for supporting pre-drilled, or hollowed out, work. The Hegner revolving centre, provided with their lathe, has a collar which fits over the body to convert it into a ring centre which is useful when turning split turnings or softwood.



A straightforward revolving centre. This one comes from Planet



A thrust race (left). Good quality revolving centres have a radial ball-race to take the axial load (right)



Multistar's Proman has 3 ball races and a replaceable hardened point

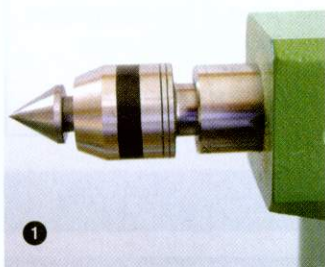
Multi-tip Centres

If you are looking for revolving centres with more versatility than those with interchangeable ends, made by Sorby (see test over the page), Multistar, APTC and

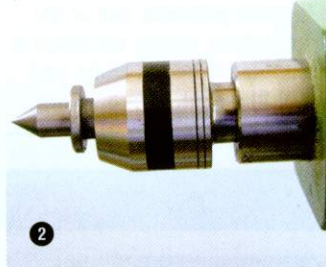
Craft Supplies, may be of interest. It is important with these products that the tip is held firmly and that there is no side play. It is difficult enough to produce a really good quality revolving

centre so adding another part, which is replaceable, adds to this complexity. The ends which usually come with such a centre are a large and small diameter point, a ring centre point, a hollow

ring centre point, a small faceplate on to which home-made shaped ends can be fitted and sometimes a cone shaped end is included for split turning. Sets in this group can cost as much as £70.



1



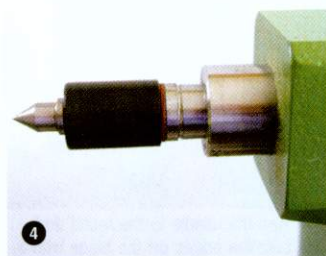
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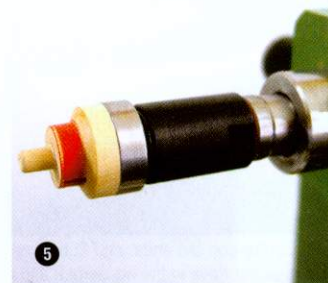
3

Multi-tip Centres

- 1 A large point accessory for the Sorby hollow revolving centre
- 2 A small point accessory for the Sorby hollow revolving centre
- 3 A tapered cup end
- 4 Multistar Marlin Micro22 live centre set with a small point suitable for miniature turning
- 5 Same live centre fitted with a miniature face plate, on which is a home made holding device



4



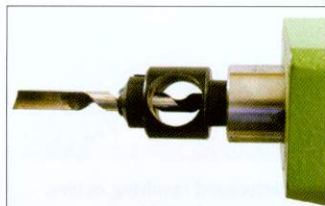
5

Specialist Centres

A solid ring centre with a hollow shank and a removable point, already mentioned under solid centres, can be used for long hole boring. The problem is that shavings tend to block up the hole in the shank and cause binding because there's nowhere for them to go.

Peter Child produce a solid centre which has a relatively large diameter body with a 20mm diameter side hole through which the shavings can escape. Lubrication is needed but it is an improvement over the conventional hollow ring centre.

Apollo manufacture an excellent revolving hollow ring centre with a 48mm long cut out in the body through which the shavings can escape. Because the end rotates on a ball-race lubrication is not required. If you intend to do a lot of long hole boring this would be a good choice.



Peter Child hollow ring centre with a drilling auger for long hole boring and the clearance hole for shavings



The Apollo revolving ring centre for long hole boring has a large area cut out to allow shavings to escape



Robert Sorby Hollow Revolving Centre Set

Sorby's new centre has a hollow 1 or 2 MT shank with a 32 dia x 35mm revolving body to take a variety of push-in slightly tapered ends, which can be levered out with the tool provided. The set has two pointed ends, one with a maximum dia of 20mm and a smaller one of 10mm. A standard solid ring centre is included and a hollow ring centre with an 8mm dia parallel pin and a 8.5mm hole for long hole boring. There are two cup-type centres, one parallel sided with an internal 15mm dia and the other tapering from 18 to 6mm. The parallel cup could be used to support home-made inserts with a 15mm dia x 14mm spigot, and an outboard end turned to the shape required to support between-centre work such as goblets. The quality of machining is high. I am assuming that there are two



ball-races in the head.

The set comes in a foam-lined case, and falls into the 'very nice to have' category, but £77 is a steep price. You can manage very well with just a solid centre or a revolving centre and have money to spare for other turning accessories. However, with a set like this hobby woodturners can carry out standard turning,

long hole boring, split turning and miniature turning without further expense and this may be attractive to some.

GW verdict

Value for money ●●●●○
Performance ●●●●●

Price inc VAT: £77.80
Sorby ☎ 0114 225 0700



Have at thee varlet

I first turned wooden swords 10 years ago for my young grandsons; they have fought many a battle and the swords have been back in the workshop for sanding from time to time where the wood has splintered, but they have stood up to a rough life and never actually broken. The Roman-style shape stands a lot of punishment. These are clearly just wooden, make believe, toy swords with no sinister intent, and have always been popular with all age groups both the boys and the girls!

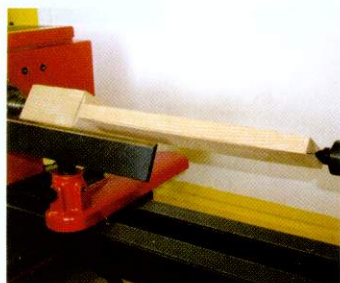
Preparing blanks

Prepare blanks for turning by marking the centres with a clear centre pop so that the point of the centre locates accurately. For very hard wood I use a combination centre drill, whose purpose is to produce an accurate centre hole on the end of blanks to match the 60° end of standard centres. These have a small pilot-hole drill at the end which means the wood is supported by the slope and not the point. This also

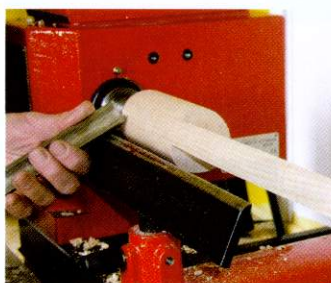
guarantees accurate alignment and ensures the drill does not wander off following the grain. They are double ended and available in a range of sizes. I use the following: BS No 4 with an 8mm dia body and a 3mm pilot drill, BS No 3 with a 6mm body and a 2.5mm end and BS No 2 with a 4.5mm body and a 1.5mm end. A set of four combination drills including BS1 costs £4.95 from Chronos (☎ 01727 832793).

How to turn a toy sword

Cut a 60x60x480 blank from tough, non splintering wood such as ash or beech with the grain running down the blade and square off the ends. Mark an area 130mm long for the handle and mark from that point to the end of the blank to give a 15mm thick section for the blade. Bandsaw slightly sloping shoulders then cut away the waste either side of the blade. It is easier to do this whilst the wood is still square rather than after turning. Make sure the bandsaw blade is not blunt or it will tend to wander



01 Centre pop the ends, and fit between a prong drive in the headstock and a revolving centre in the tailstock



02 Turn the handle to the round and take the edges off the blade with a sharp roughing gouge



03 Shape the handle to a diameter to suit a small child's grip. Shape the blade's end virtually up to the centre point



Axminster AW18BDS Belt and Disc Sander

This sander is capable of pretty heavy work and is rated 'suitable for trade'. It's made from cast iron with a heavy steel base and weighs 27kg. The belt is 1080x25mm; replacements cost £1.76 for 80grit and £1.69 for 120 and 150 grits. The 200mm dia aluminium disc takes self-adhesive sanding discs; a replacement pack containing two each of seven different grits costs £9 (or 80p each).

The 500x370x660mm sander is powered by a 0.33hp induction motor with the NVR switch positioned for easy access for either function. The single speed has been set to reduce any risk of burning the wood being sanded. There are two dust extraction points to take 50mm pipes. The machined cast iron tables have a groove for the adjustable mitre fence. Both can be tilted and are locked in position with strong levers; the disc table is calibrated in degrees. The tracking device

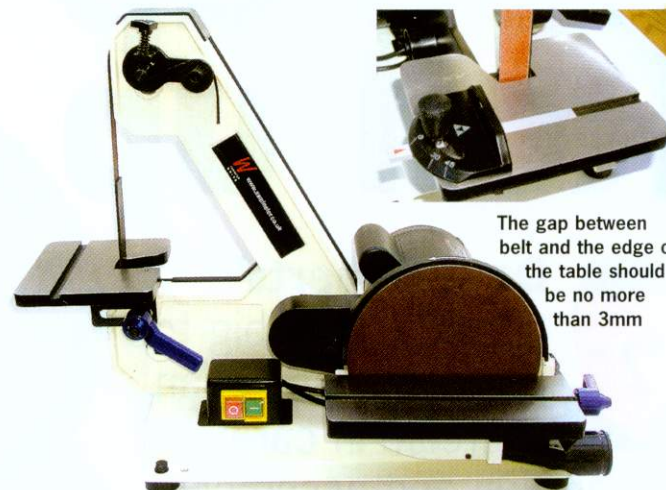
for the belt is easy to adjust and automatically tensions.

You have to put the machine together yourself, a task that took me 30 minutes! All Allen keys are provided but you will need a screwdriver. I did not bolt the machine down because its heavy weight and adjustable feet make it very stable. The machine is reasonably quiet in operation.

I like the tables, which are rigid and stay firmly in position, and the mitre gauge would be particularly useful for preparing accurate mitres for picture frames. The tensioning device works well and it is a simple matter to remove the cover to change the belt. Ensure that the gap between table and belt is as small as possible and certainly no more than 3mm.

The 100x25mm vertical metal plate immediately behind the belt ensures a flat surface behind the sanding area. Above this point, however, the belt is not supported and should not be used for general sanding. Do not touch the sharp edges of the belt here because you could injure your fingers. It could be argued that the plate should go right to the top and I am surprised that it doesn't.

Once set up the disc sanding table stays close to the disc, even when tilted. It is



The gap between belt and the edge of the table should be no more than 3mm

an advantage that discs are self adhesive rather than Velcro backed since it guarantees they are truly flat.

Sanding is a dusty operation so I linked a vacuum to each extraction port in turn. There was hardly any dust from the disc but with the band it was not quite so effective although a good proportion was removed. A respirator is still advisable.

Machine and castings are well finished, but the wires from switch to motor could have been run under the base for protection and neatness.

This is a practical sanding machine at a good price which is workmanlike and of use in

any workshop. At the time of writing it is supplied with a free latex cleaning block (£9.94). This is excellent for de-clogging belts and discs and prolongs their life; the block itself lasts for years.

GW verdict

Value for money ●●●●●
Performance ●●●●●

Price inc VAT: £89.89
Axminster ☎ 0800 371822

This belt and disc sander has a use for a number of tasks the turner is likely to undertake. For example he can:

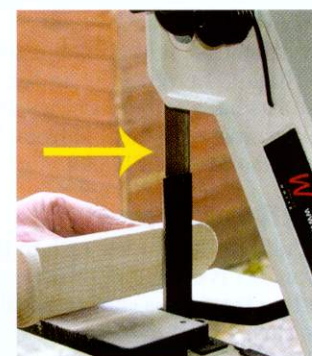
- true up the ends of blanks prior to turning
- square up and prepare blanks for segmented turning
- remove spigots
- shape, as illustrated in the project below
- regrind or finish turning tools



The disc sander table with the calibrated mitre gauge



The tracking and self tensioning device is very effective



Do not touch the unsupported area when the machine is running



04 Sand the handle well, remove the sword from the lathe and move to the combination sanding machine



05 Sand off the waste (and marks from the centres) at the top of the handle and the blade end on the disc sander



06 Form smooth convex surfaces and rounded edges on the blade with the belt sander. Avoid the belt digging in



07 Paint the handles but varnish or oil the blade. Blade edges will need re-sanding from time to time to remove any splinters

Roll up Roll up



Dave Roberts' unique circus big top jewellery case is an exercise in careful preparation and assembly before turning even begins

Back in GW 126 I delved into segmented work with built-up layers with the grain horizontal. In this jewellery box project the pieces are vertical. There are 24 staves with veneer in between each stave. This work is often referred to as pin stripe.

I was recently commissioned to turn a pair of boxes that looked like a circus tent, with an opal stone inside a finial on top, and this is what I came up with. The timber is pau amarillo and goncalo alves, with pink ivory for the finial. The veneer is timber that has been stained a crimson colour, and is obtainable from Art Veneers (☎ 01638 712550).

Cutting the wood

1 Perhaps the hardest task in this project is cutting the timber and getting the angles spot on. Really the staves need to be cut on a table saw for an accurate bevel to be set, but this can be a little hairy, so you may prefer to cut the

angles on a bandsaw and clean up the cut faces with a handplane.

Use an adjustable protractor set to 15° to set the blade angle. It will be advisable to run some scrap timber through first to see if the angles are correct. A little tweaking of the saw blade may be required. All the pieces must fit together with 100% accuracy because if not it may well explode while you are turning it!

For the base staves the widest point of the bevelled sections will need to be 25mm. The lid is made up of two sections, and here the pieces on the bottom section should measure 25mm at the

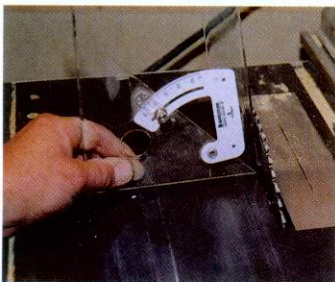
bottom while those for the top section should measure 15mm. It is better to run lengths of wood through the saw longer than you need and then cut them to length.

Now you can cut them to length on the bandsaw, a little longer than you need. This way, you will have enough timber to clean up the top and bottom of each assembled ring.

2 Make sure you have enough veneer to complete the job, and cut a series of slips to fit each glue joint in your three staved assemblies. A piece of plywood, a steel rule and a Stanley knife are



Cutting and assembling the staves and forming the lid



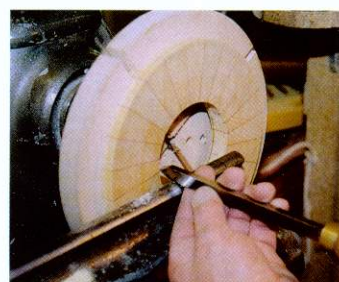
01 The cleanest way to bevel the staves is on a table saw. Set the angle precisely from an adjustable protractor



02 The staves are glued together with a slip of red veneer in each joint. Make a dry run before gluing the assembly



03 Large jubilee clips are perfect for cramping up the segmented rings. Make sure these are perfectly flat



04 Turn the bottom lid ring flat first then shape the centre to a perfect circle to accept a spigot on the top lid section

all you need to cut the veneer. Cut each bit just a little over size.

Before you start assembly, pay some attention to how you will glue up the segmented sections. I used some extra large jubilee clips but you could use loads of extra strong rubber bands or a Spanish windlass system or a strap cramp - it's up to you.

Start with the base section. Have your jubilee clips ready along with all the 24 staves and the veneer. When you start to glue don't stop half way through as time will be against you. Work as quickly as you can. Spread the glue on with a paint brush as this will speed up the job. Place a piece of veneer in between each glued stave and line them up and push them together as you go.

Once you've built up the ring section, put on as many jubilee clips as you can fit and carefully tighten them up, checking that nothing is slipping out of line. After 15 minutes or so go back and give the clips a tweak.

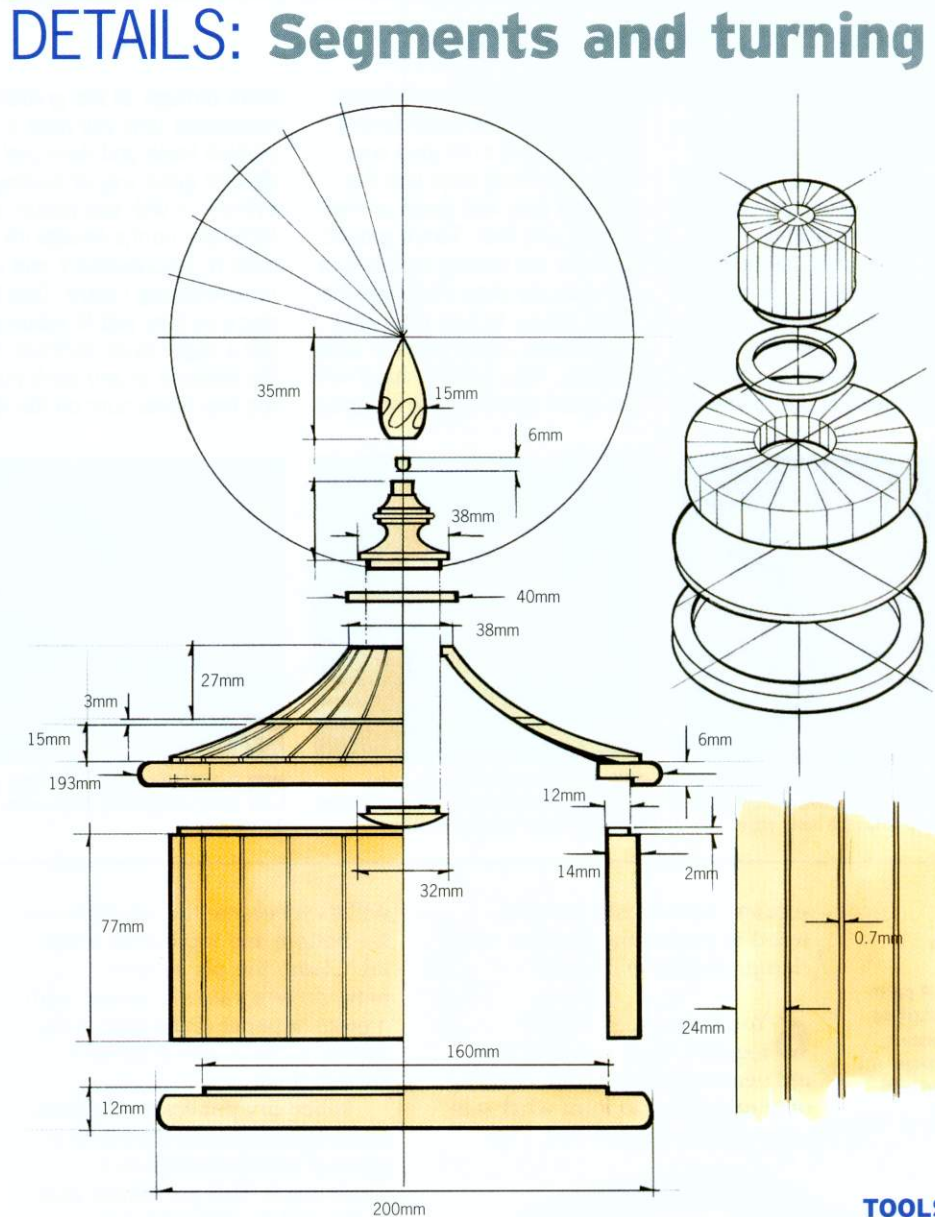
Repeat this procedure for all three sections, then when all the blocks are glued up leave them all for two days to set.

Turning the Lid

3 Start turning the glued staved sections with the bottom segmented half of the lid. The easiest way of holding this is with the Axminster chuck with its accessory jaws extended with pieces of MDF then turned to the size you need.

Place the staved ring into the chuck and face it up. Then turn it around and face up the other side. Use a 9mm gouge for this and keep checking with a steel rule to make sure each face is flat.

The top of the lid will be glued into this bottom section via a small spigot so the centre of the bottom part will need truing up to receive this. Use a parting tool but don't take too much off.



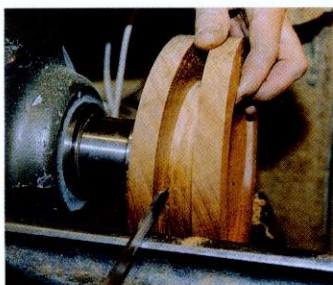
4 At the bottom of the bottom section there is a ring of gongalo alves, and the best way to turn this is to fix the blank to a screwchuck and turn a separate ring. Turn this bigger than you need, making sure one face is flat where it will be glued to the lid. Use a 9mm gouge to turn the outside and a thin parting tool to

part the ring off. Turn it on a slow speed and as you part through and you should be able to catch it with your hand.

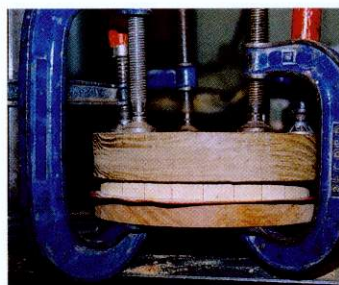
5 Between the bottom of the lid and the ring is a ring of red veneer. This is best cut as a solid piece, a little over size, then glued on and clamped between the two

TOOLS YOU'LL NEED

9mm, 6mm gouge
3mm, 6mm parting tool
Jacobs chuck
Screwchuck
Combination chuck
Dremel drill
Table saw



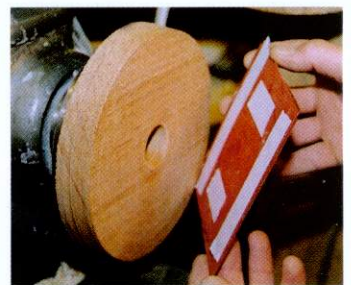
05 Now turn the ring that goes on the bottom face. Face off turn the inside, then part off with a parting tool



06 Clamp together the lid section and the ring, with a slip of veneer between the two



07 Make up a piece of ply for the upper ring in the lid by sandwiching together three pieces of red veneer



08 Use double sided tape to hold this to a glue chuck while you turn the ring to size

Turning the bottom section

1 Fix the body into the MDF jaws and face up one end. Use a steel rule to make sure it is flat and turn part way down the side. Turn it around and do the same to the other end.

2 The top part of the body has a goncalo alves ring, around it turned in the same way as the ring for the lid. The bottom of the body has a ring of veneer. Glue the ring and the veneer to

the body as before and leave.

3 Now you can start turning the body to the finished size. Place the body back into the wooden jaws and clean up the veneer end first. Turn it around and use the parting tool to turn the goncalo alves ring. Use the 9mm gouge to turn the inside of the body. Sand with the lathe rotating, then sand by hand with the grain and the lathe stopped.

Work through all the grades of sandpaper until you have a perfect finish and then seal.

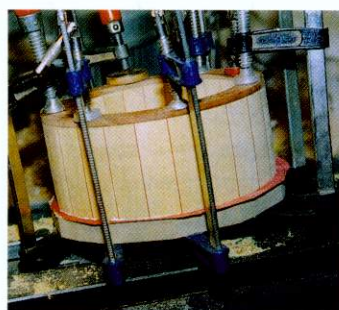
4 One good way of holding a cylinder is with two pieces of MDF, one on the headstock fixed to a screwchuck and one on a revolving centre. Turn the discs so they just fit inside and put a slight taper on them. Wind the tailstock in and don't put too much pressure on the disc.

Use the 9mm gouge to turn the outside. Keep a close eye out and make sure the sides are parallel. Place a steel rule across to check this. Remove the body to check if the lid fits. Finally, sand, seal and polish.

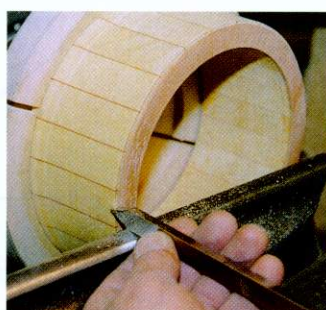
5 Turning the base separately from the body allows you to get a perfect finish on the bottom. The piece of wood for the base wasn't thick to start with so it



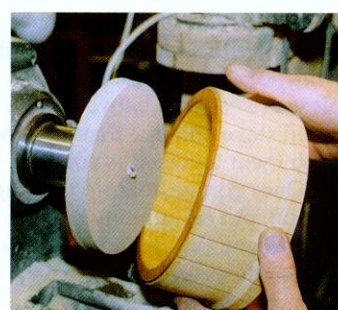
01 Face up the top edge then shape half the side, inside and out, then flip and repeat for the other edge



02 Turn the ring for the top of the cylinder then clamp this and a sheet of veneer to the cylinder as shown



03 Hold the assembly in the MDF jaws while you turn the small rebate in the top ring



04 To turn the outside face of the cylinder wall you will need to hold it between two slightly tapered discs...

The lid is a complex assembly of parts and care must be taken to ensure that the veneer lines line up with each other perfectly

sections. Use a scrap piece of wood to protect the lid from the clamps and leave it to dry.

6 You'll also need to glue together three pieces of this red veneer with the grain crossing over each other to form what is in effect a piece of plywood. This

will then become the ring between the bottom and top halves of the lid. Clamp this ply section between two pieces of wood, with a piece of paper either side of the veneer to make sure it doesn't stick to them.

When dry put on some double sided tape and stick the ply to a piece of wood attached to a screwchuck. This ply veneer goes in the middle of the lid. Use a parting tool to turn it to a ring, as this will produce a clean finish. Then prise it off.

7 Now turn the top part of the lid. Mount the segmented blank into the wooden jaws and turn a spigot with the parting tool. This must be cut deep enough to accommodate the veneered ply ring (check this is a good fit) and

project 1mm beyond to locate into the centre of the bottom part of the lid. Without this spigotted joint it would be very difficult to line up the veneers on the two parts of the lid, because when you glue it and put the clamps on, the chances are the clamps will push the top part of the lid off-centre.

Remove the lid, turn it around, and cut a dovetail to fit a large set of jaws. This will be the best way of holding the completed lid while it is being turned.

Now you can glue the whole lid assembly together. Line up the veneers on both parts, put plenty of clamps on and leave it to set.

8 Fit the glued up lid blank into the combination chuck and set the lathe on a speed around 1000 rpm. Use a 9mm gouge and start



Assembling the lid sections and turning



09 The inner ring diameter must match the inside diameter of the bottom lid section



10 Face up the upper lid section then turn a small spigot to locate into the lower lid section...



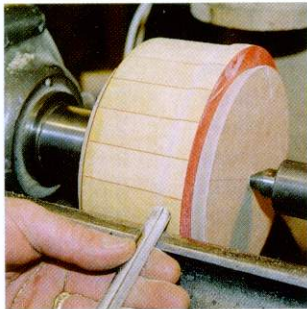
11 while accommodating the veneer ring. Glue up the assembly and clamp, making sure the lines match up



12 You turn through the veneer section as you start to shape the inside of the lid

had to be hot glued onto a scrap piece of wood. This avoids screwholes which would only look ugly.

6 Fix the scrap piece to a screwchuck or faceplate and true it up. Put one ring of glue around the outside of the scrap piece and glue the blank onto it. You will only have a few seconds to work before the glue sets. Face the



05 ... held between the head and tail stocks. Take care not to tighten too much or you may split the segments

base up using the 9mm gouge, checking with a steel rule to make sure it's flat.

7 Part of the base sits inside the main body. Turn the outer edge with a parting tool and, when you get close to the finished side, stop the lathe and offer the main body to the base to see if it fits snugly. Use the 9mm gouge to turn the outside rim.



06 Use a glue chuck to hold the base while you work on the edges, then fit to the cylinder...

8 Place the base into the wooden chuck and tighten. Now you will be able to skim it off and get it flat. Check it with a rule. Both sides should have the final sanding done with the lathe stopped and with the grain. Put PVA glue on the bottom of the body and push it into the base. Clamp together and leave it to set.



07 ... and form a slight rebate before finishing off held in the MDF jaws to flatten the surfaces

turning the inside. It will look a bit messy until you get deep inside. Turning slowly and keeping the bevel rubbing will produce a good finish. Use the parting tool to turn a shallow recess to sit over the main body. It is a good idea for the lid to be about 2mm larger than the main body to make it easy to remove.

Carry on turning down to the bottom, taking fine cuts until you reach the desired shape. Sand the inside up to 320 grit and seal with sanding sealer. When dry rub back with 000 wire wool, then polish.

9 Remove the lid and fix into the wooden jaws, using the tailstock with a revolving centre for support. Start turning the outside of the lid. Use the 9mm gouge and take light cuts. Remove

A small rebate in the lid sits over the turned and rebated top cylinder ring



from time to time to check the wall thickness. Remove the revolving centre and use the parting tool to clean up the hole.

A good way of sanding is power sanding. This is with an electric drill with a 50mm sanding pad. The sandpaper is held on by Velcro but the final sanding should be done by hand with the lathe stopped. Rub the paper with the grain then seal and polish.

Turning the Finial

10 Start with the pink ivory button which will be glued to the inside of the lid. Fix the timber into the chuck and turn it to the finished diameter and round the end off. Use the parting tool to turn the spigot. Sand, seal and part off.

11 The collar is turned in goncalo alves and is thin and delicate. The best way of holding it is to stick it to a scrap piece of wood via double sided tape. Turn it to the finished diameter and thickness. Use a 3mm parting tool to turn the hole.

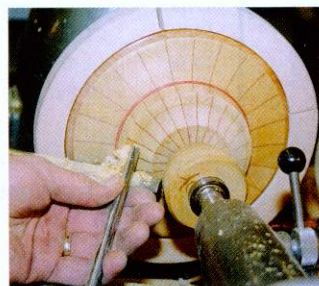
12 The finial support is turned in pau amarillo. Mount the blank between centres and use the 6mm gouge and 6mm parting tool to turn it. Turn the spigot first. This will sit inside the collar. Then carry on turning the rest, not forgetting the small spigot on the other end. Then sand and seal.

13 The finial itself is in pink ivory. The first job here is to drill a 9mm hole in one end 22mm deep. Mount the blank onto a spigot chuck – a scrap piece of wood fixed to a screwchuck with a short spigot turned on it. Push the blank onto this and bring the tailstock up for support. Turn it to the finished shape.

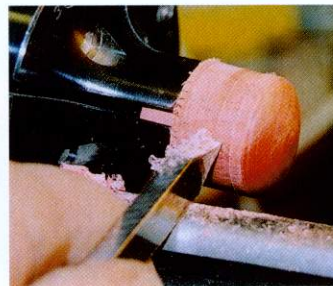
Now draw two vertical lines 15mm apart and then four equally spaced horizontal lines, to denote the shape of the twist. Mark each line 1, 2, 3, 4, then draw a diagonal line from 1 to 2, 2 to 3, etc. Use a Dremel drill fitted with



13 Leave a slight lip on the outer edge of the lid to fit over the outside of the bottom of the box



14 Flip the lid into the large MDF jaws to hold while you turn the outside of the lid. Use the tailstock for support



15 Turn a small domed button to fit into the hole in the top of the lid on the inside face



16 Now turn a small collar to fit the spigot on the finial support. A glue chuck is useful here, mounted on a screwchuck

a small rotary burr to cut out the waste. You will need a steady hand! Cut the timber until you reach the drilled hole.

When all the timber is removed finish off with cloth backed sandpaper torn into thin strips, working the sandpaper until you get the finished shape. Be careful you don't sand too much away; the bines are thin. Work through the grades up to 400 grit to get a fine finish. Remove the tailstock and finish turning the end of the finial.

Inside the top of the finial is a small pink ivory button to cover the hole that has been drilled and make the whole finial look neater. Mount the blank into a Jacobs chuck while you turn. The button is 9mm diameter and 6mm long. Use the parting tool and 6mm gouge. Sand seal and part off.

14 Glue the collar onto the support for the finial and fit this into the lid. Then glue the button into place. Glue the small button inside the finial. If you wish to put a stone of some sort into the finial, now is the time. Finally, place a little glue onto the spigot and push the finial on.



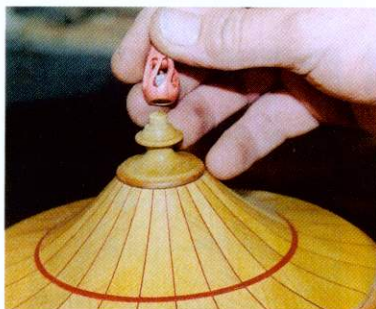
The finial



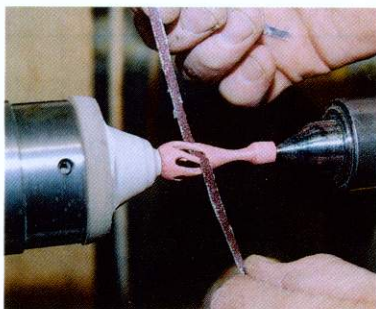
17 The finial support has a spigot on the bottom to fit the collar and the main lid, plus one at the top to fit the finial itself



22 Finally, fit the button in the lid to finish this off neatly and hide the top spigot from the finial assembly



21 Glue the finial support and collar in place in the top of the lid, then add the finial, remembering to pop in the ball



20 Carefully clean up the bines with strips of cloth-backed abrasive. This is stronger than paper abrasives



19 Use a Dremel fitted with a small with a burr to cut the slots through the finial wall and into the central pre-drilled hole



18 Turn the finial to shape, drill the centre out, then lay out the diagonal twists on the lower profile as shown

Metric to Imperial conversion chart

Note that dimensions are only given as an indication and are only accurate to 0.5mm. Do not rely on this for critical conversions

1mm	1/32in	51mm	2in
2mm	3/32in	52mm	2 1/16in
3mm	1/8in	53mm	2 3/32in
4mm	5/32in	54mm	2 1/8in
5mm	3/16in	55mm	2 5/32in
6mm	1/4in	56mm	2 7/32in
7mm	9/32in	57mm	2 1/4in
8mm	5/16in	58mm	2 9/32in
9mm	11/32in	59mm	2 5/16in
10mm	3/8in	60mm	2 3/8in
11mm	7/16in	61mm	2 13/32in
12mm	15/32in	62mm	2 7/16in
13mm	1/2in	63mm	2 15/32in
14mm	9/16in	64mm	2 17/32in
15mm	19/32in	65mm	2 9/16in
16mm	5/8in	66mm	2 19/32in
17mm	21/32in	67mm	2 5/8in
18mm	23/32in	68mm	2 11/16in
19mm	3/4in	69mm	2 23/32in
20mm	25/32in	70mm	2 3/4in
21mm	13/16in	71mm	2 25/32in
22mm	7/8in	72mm	2 27/32in
23mm	29/32in	73mm	2 7/8in
24mm	15/16in	74mm	2 29/32in
25mm	1in	75mm	2 31/32in
26mm	1 1/32in	76mm	3in
27mm	1 1/16in	77mm	3 1/32in
28mm	1 3/32in	78mm	3 1/16in
29mm	1 5/32in	79mm	3 1/8in
30mm	1 3/16in	80mm	3 5/32in
31mm	1 7/32in	81mm	3 3/16in
32mm	1 1/4in	82mm	3 7/32in
33mm	1 5/16in	83mm	3 9/32in
34mm	1 11/32in	84mm	3 5/16in
35mm	1 3/8in	85mm	3 11/32in
36mm	1 13/32in	86mm	3 3/8in
37mm	1 15/32in	87mm	3 7/16in
38mm	1 1/2in	88mm	3 15/32in
39mm	1 17/32in	89mm	3 1/2in
40mm	1 9/16in	90mm	3 17/32in
41mm	1 5/8in	91mm	3 19/32in
42mm	1 21/32in	92mm	3 5/8in
43mm	1 11/16in	93mm	3 21/32in
44mm	1 23/32in	94mm	3 11/16in
45mm	1 25/32in	95mm	3 3/4in
46mm	1 13/16in	96mm	3 25/32in
47mm	1 27/32in	97mm	3 13/16in
48mm	1 7/8in	98mm	3 7/8in
49mm	1 15/16in	99mm	3 29/32in
50mm	1 31/32in	100mm	3 15/16in

Metric equivalents

25.39mm = 1in
305mm = 12in
1 metre = 39 3/8in

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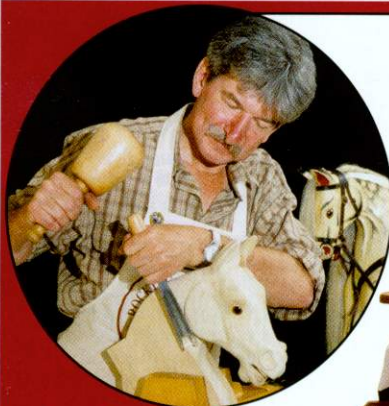
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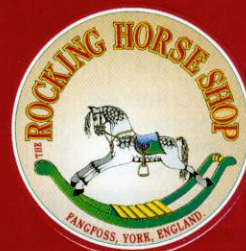
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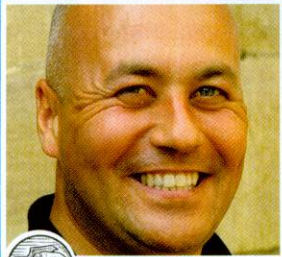
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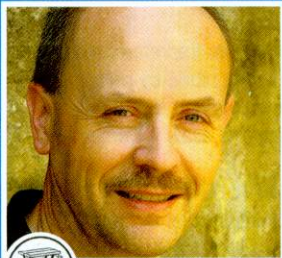
Answers

Our experts answer questions on shingles, kitchen worktops, table saws and detachable routers

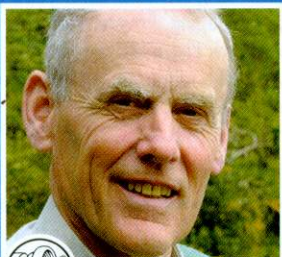
Ask the Good Woodworking expert team



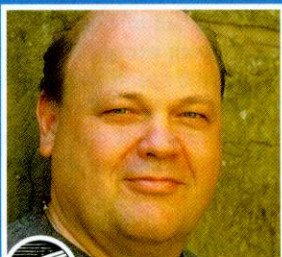
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What cabinet saw?

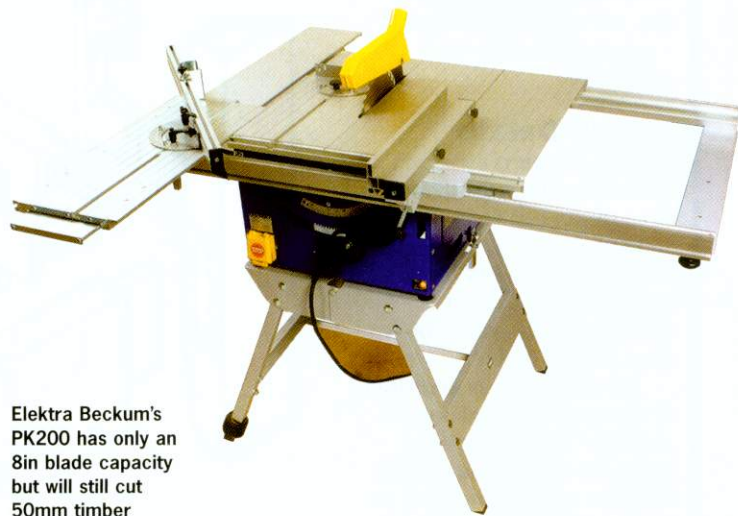


I would value your advice on the best value/quality on the purchase of the Record RSTS 12 cabinet saw against the Elektra Beckum PK200. Do you know of any saw with a belt motor at about the same price, £500?

G. Hewitt, Bishop Auckland.

Your two choices are really now down to one as, since their shake up, Record have removed the RSTS12 from their catalogue. However, it is still available in a different guise as the Lutz Jumbo from Southern Woodworking (☎ 01903 732452).

With this in mind, your choice of value against quality works one against the other. The Lutz saw has a 12in blade so a far bigger cutting capacity than the 8in PK200, but this extra depth may not be a necessity if all you need your saw for is accurate conversion of thinner stock. The PK200 will cut 50mm thick timber but, if you do it regularly, the saw will be operating at its maximum capacity more often than might be good for it. It's like driving a car, push it flat out day in day out and something invariably gives.



Elektra Beckum's PK200 has only an 8in blade capacity but will still cut 50mm timber

Both saws have aluminium tables, but it is the fences that make the difference. The Lutz fence isn't too bad, but the Record version I looked at did bind as you moved it, although it was parallel to the blade once locked off.

The Elektra has a more solid feel to it and locks off firmly but I would prefer to see an upgrade on the locking screw. This is simply a threaded bar with a small two winged knob on it. The Lutz has a sliding carriage incorporated so it takes up very little room. The Elektra version can be retro fitted if

you initially don't have the need for it and it detaches very easily if space is tight.

In the past, at this budget, I would have recommended the Kity 419, but sadly Kity have gone out of business, certainly for the time being. So, of the two you mention, despite its lower cutting capacities, I'd go for the Elektra as I feel it has more scope for accurate cutting.

As for a belt driven saw at about £500 or under, the Kity would have fitted the bill.

Aside from this, another saw well worth considering is the Xcalibur 802 0101 model. I'm unsure if this has a belt drive, but it does have a cast iron table, rack and pinion blade adjuster and a good fence. What is impressive is its selling price, £393.63 from Woodford Machinery Ltd (☎ 0161 480 2900). I haven't seen this model but its big brother is excellent (Tested GW 146). It might be worth a call to them to check if it's belt drive but even if not, it looks to be superb value. I hope to get to test one in the near future.

Andy King

Router mill



I have a metalworking milling machine with a static head and a table capable of working in three axes. I have made an adaptor to fit my Elu router but its base prevents close viewing of the cutter. Is there a good quality router available with a variable speed but simply comprising the router head with spindle lock and a mounting flange square to the spindle axis?

P. Wisson, Bromham

Several manufacturers make a small router where the main body can be removed from the base plunge assembly for use in a drill stand or other accessories. Generally these have a 43mm collar, the same as many power drills. Suitable models might include the Trend T3, Bosch POF 600 ACE and the Freud

FT1100EK Five in One Router. These all include the standard base and, in the case of the Freud, several accessory bases. DeWalt also make a dedicated 2000W router motor, with a 65mm collar flange specifically for such purposes.

Pete Martin

Trend's T3 router has a detachable base



Veneer glues



I would appreciate your advice on the following points arising from your answer to my query regarding veneering a 3x1ft piece of plywood. You say Extramite is an ideal glue to use for small areas. Would this apply for the area I intend to work? You suggest using an iron to set it quickly. Can the iron be used in direct contact with the veneer

Delving into detail

Joints for a Magazine Rack by Jeff Gorman

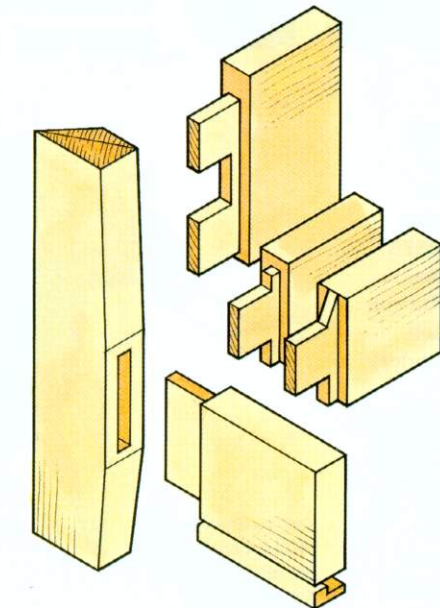
In 1966 I made this useful article (in abura as far as I can recall) that sees daily use. It utilises woven raffia fabric, though a plain stiff canvas, preferably with a coarse weave, could serve equally well.

Design Details

As far as strength is concerned, the maximum tenon lengths need be no greater than five times their thickness. Taking this as a guide, 6mm tenons fitting into 'blind' mortises would indicate a minimum leg cross-section of about 36mm x 36mm.

Left unshaped, this would lead to what most of us might regard as a rather hefty and inelegant design. Here the jackplane comes to the fore for firstly modifying the profiles of their cross sections and then by tapering then down to a smallish section at their foot ends. The test of time has shown that I was justified in using stuff (see below) requiring shorter tenons.

Plain tenons on the wide rails would imply long mortises that could weaken the structure; hence as is usual, double tenons are suggested. I have not shown the conventional tapered haunch at the top (inset) because this produces short grain perilously near to the leg tops. The alternative would be a rectangular haunch (also inset) that finishes



below the top of the rails. Since its benefit is limited, one has not been shown on the main drawing.

Even though I can't see it adding much structural benefit, but not wishing to break with convention without good reason, I have shown the usual haunch between the tenons

Hints For Making

- Avoid twisted frames checking the face sides and face edges with winding rods.
- Retain your datum surfaces by marking out the joints before attempting any shaping.

- Chop the mortises while the legs remain rectangular in section.
- Slightly curve the top surfaces of the legs (here shown as two flats) and slightly radius the top arrises and the outer corners of the legs. Keep fairly sharp arrises on the inner edges.
- Gently curve upper rail edges but maintain sharp arrises.
- Mount the completed frame on a flat, untwisted and level surface. Pack appropriate feet with wedges and check the rails with a spirit level. Use a cabinetmaker's mouse or suitable block to scribe the legs at the minimum required

height from the reference surface.

- Fix the fabric by means of screws through slender slats rebated to allow for a hem.

Basic dimensions

Between insides of rails: 175mm and 490mm. The rails were made out of 900mm (and 500mm) x 15mm (finished size). The legs at 530mm long were 33mm x 28mm prior to shaping. I regret that I cannot now find a UK supplier of woven raffia fabric, though a Web search for 'raffia fabric' will presently reveal a couple of overseas sources.

or should a protective sheet of paper be used? Also, after it is ironed, should weights be applied? The veneer has been in a roll for several months, so should it be dampened before unrolling?

H. Brown, Malton

Extramite would be ideal for your purposes, but I would say that a panel of this size would be better off simply glued, weighted down and left to cure naturally rather than applying heat. If you do apply localised heat to any veneering, work would be better off protected from the heat source as you suggest. It only needs a low heat setting to accelerate the curing process, so any protection from an iron is an advantage, whether a cloth or brown paper. I would be inclined to use an iron more as a method of applying localised heat to an area that isn't adhering properly, such as an edge of a panel where they can curl slightly.



We detailed how to cut worktop joints with a jig in GW 148

Pearl or animal glues are different as they soften under the heat, allowing air bubbles to be forced out and repairs to be made easily. Extramite hardens off quickly under heat, so is more suited to a difficult area such as a curling edge mentioned earlier. Big panels in vacuum bag type work can have the curing process accelerated by simply draping a

heated blanket over them.

If your veneer appears to be brittle and cracking as you unroll it, dampening it may help to get it unrolled prior to gluing but I would weight it down once you get it unrolled to stop it trying to re-curl as it dries. If it will unroll without any problems, I would let it try and flatten out naturally for a day or so before using it.

Andy King

Worktop breakout

I recently had to fit some kitchen worktops that comprised of two male and female cuts. I was using a DW625 router with a jig and 1/2in cutter. I cut the female joints first, and these came out perfectly. When I cut the male joints the laminate started to chip about halfway down at the post-formed end. (I cut the upside down ones first.) Thinking it

was a blunt cutter I bought a Trend replacement. This started off OK, with plunges of about 10-15mm, but about halfway down it started to chip again. What is going wrong? I had the router at full speed and entered from the post-formed end. I tried masking tape over the cut line but still ended up with the same result.

A Johnson, Essex

The one thing that springs to mind is a flaw in the worktop itself, as everything else seems to be in order. You are feeding the router so that the leading edge of the cutter addresses the laminate edge at all times by flipping the top when necessary, so it isn't a front edge chip at the roll of the post-forming, and you've eliminated a blunt bit problem.

To get it in the middle of an edge (ie, across what is in effect the 'end grain') does make me wonder whether there is a either a

Using shingles



I want to roof over my conservatory with wooden shingle tiles.

What wood do I use, and how do I shape and make the shingles, what size, and how do I fix them? Any suggestions and help would be appreciated.

Bernard Tate, Cheshire

Western red cedar is the timber of choice for roof shingles as it is extremely resistant to rotting and changes in climate, even without a protective coating. American houses use shingles extensively, so they are widely available. The UK isn't quite so enamoured with them, tending to stick with concrete or clay roofing materials, so they are more difficult to find.

The sizes used in the US are normally about 16in (400mm) long and $\frac{3}{4}$ in (10mm) thick. The widths vary from about 4in (100mm) to 14in (350mm), which means that when you lay the roof, the next row of shingles that overlaps the joint below may not always be dead centre, as it would on a slate roof. This adds character to the finished

job, but is more wasteful as you need to ensure good coverage over the joint each time.

In theory you can lay shingles on battens like a traditional roof, but these need to be closely centred, like the layout of a Brosley pattern clay tile, as the projection, or portion of the shingle exposed to the weather, is normally only about 150mm. Unlike a traditional tiled roof where one tile laps the next one, this means that there should be three thicknesses of shingle where they overlap.

The easier way is to cloak the roof is with a sheathing board such as plywood. You can simply snap a chalk line for the first row and repeat for each row without having to gauge the battens, plus you have even better water integrity.

Shingles need to be fixed with a nail with a big head that won't pull through and also won't rust, so a galvanised clout nail is probably the cheapest option. Copper alloy nails are better for weathering, but can be difficult to drive as they are softer. They are also more expensive. I'd be inclined to pre-drill

the shingles before fixing to minimise chances of splitting.

I guess by your question that you plan to cut your own shingles. This might not be the best option, despite the savings in cost. Cedar is pretty straight grained so you could cleave individual ones directly from a pre-cut block, but any deviation in grain pattern and the shingle will follow it, so won't sit down to the roof line properly.

This leaves a sawing option. A circular saw won't have the depth of cut unless it is an industrial model, and the thickness of the blade makes it very uneconomical, even if you have access to one..

The bandsaw seems the only alternative, but with timber up to 400mm deep, this will need a heavy-duty machine, bearing in mind how many you will need to cover a roof using the triple overlap mentioned earlier.

A quick look on the internet for shingle suppliers in the UK threw up a company called The Deck Supply Company Ltd who supply nationwide. Contact them at ☎ 01895 271300 or at

www.decksupply.co.uk.

One thing I am unsure about is the 'sweating' effect you may get with the shingle directly on a board, as I feel you won't get the same passage of air that you get on a felt and batterned roof, so it may limit the lifespan of the shingles or the deckboard. On a new build project, building regs may also require a different approach regarding insulation and air passage rather than simply nailing directly to any grounds. It may be wise to contact a specialist supplier for more information.

Andy King



Shingles find many applications in the US but are not popular here

flaw in the chipboard substrate, leaving a slight dip, or an area where the laminate hasn't adhered correctly, which the router is maybe tearing through slight vibration as it passes.

* Most worktops come oversized to allow about 50mm to be trimmed back, which should in theory mean that the laminate is bedded firmly down to a solid core. Maybe this could be your problem? If the chipping isn't excessive, you may be able to tap the jig back by a millimetre or so and take a full depth skimming cut to see if this will help.

Andy King

Index online



 Do you provide an electronic searchable index of all the articles published in GW? This would be very useful, as the printed versions you publish can take a while to go through.

Chip Clements, Kent

You can now download a text copy of our index (up to GW 140 at present) from our website. This can simply be imported into any database application on your computer. Our website address is of course simply www.goodwoodworking.co.uk – nice and easy to remember.

Pete Martin

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FOR THE GOOD WOODWORKING EXPERTS

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MASTERCLASS

David Savage's expert comment from his own furniture training workshop

Chairs, chairs, chairs

On a rare trip away from his Devon workshop, David Savage travels up country to visit Westonbirt Arboretum. He takes part in the *International Chair Symposium 2004*, a new event hosting chair makers from 11 countries

This month I had originally planned to talk about a chair I was taking up to the rather grandly named *International Chair Symposium 2004* (held at Westonbirt Arboretum, Gloucestershire over the May Bank Holiday). Then tell you how we came to make it, but that can wait for next month. Instead I'll tell you a little more about what turned out to be an exhausting three day event.

Chairs 2004 was a new event conceived by the wonderfully named Chloe Darling (yes, she is as nice as she sounds!) An event bringing together chair makers from all over the world to spend a few days sharing not only lectures and workshops, but also convivial evenings and pleasant walks around the wonderful western verges of Westonbirt Arboretum.

The idea was that we each should bring one chair that would form an exhibition to which the public would be invited. At the end of the symposium those chairs that makers didn't want to take home would be sold at a public auction.

The attraction to me was the opportunity to meet fellow chair makers, particularly people whose work I knew, either from exhibitions at home or abroad, but had never had the chance to spend any time



There were some 140 traditional and rather more contemporary chairs exhibited. Certainly the most dramatic piece was *Clouded Blue*, made especially for *Chairs 2004* by Morgan Design, a young team based near Salisbury, Wiltshire

with. Usually at an exhibition's private view you're working hard, with little time to chat to colleagues and compare war wounds. This was also a chance for me to meet young new makers and see what they are up to. Even though I was up for it, nothing quite prepared me for meeting George Morgan! But more of that later...

Symposium

I arrived on the Thursday to find three large, very wet marquees and half a dozen people in blue sweatshirts running around like scalded chickens. Almost all of these were called James, although one was rather affectionately known as Custard. I think that was my lowest point. Not learning about Custard, but seeing the damp tents!

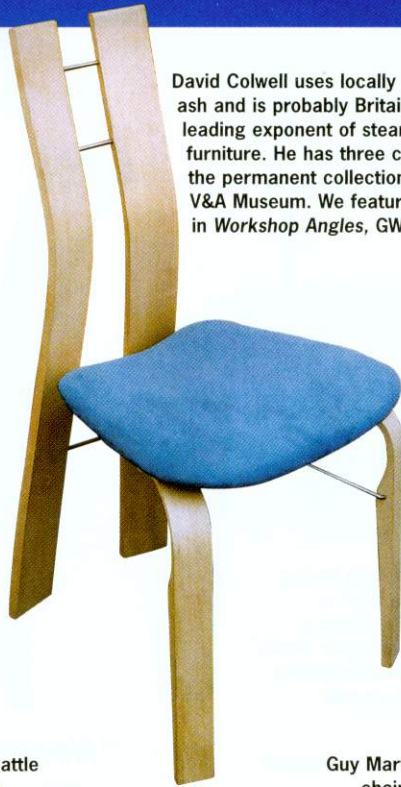
Years ago, one of my customers said "If you're selling expensive furniture David, why are you doing it in a rain-soaked tent?"

This was when part of my marketing strategy included a series of county shows. Although one has to start somewhere, he was right, and at that moment I didn't really want to be in another wet tent.

So I put my chair where I was told to and quietly took my catalogue and went to my very expensive bed and breakfast. The symposium



This legs of this stool from Christopher Cattle are not jointed but grew together. What a lovely concept!



David Colwell uses locally grown ash and is probably Britain's leading exponent of steam bent furniture. He has three chairs in the permanent collection of the V&A Museum. We featured David in *Workshop Angles*, GW 112



Guy Martin's *Tula* is a small, upright dining chair made from locally harvested ash thinnings and cultivated willow

coincided with the Badminton Horse Trials, which had driven the price of accommodation through the ceiling. As it happened, the rain continued all weekend, and the more it poured the more I thought my decision to stay at an expensive B&B rather than a cheap campsite was a good one.

Later that night I settled down with the catalogue and saw in greater detail who else was coming. At first sight the preponderance of Windsor

chair makers and Shaker replica chair makers was disappointing. I say this because there is a kind of negativity about people that make reproductions or replicas of existing styles of chairs. It's a bit like members of the Morris Traveller owners club!

Perhaps this is best summed up in the catalogue entry by Tino Rawnsley. Tino makes, quite nicely, a very average-looking Shaker backed rocking chair. Its

average looks are described very clearly in this catalogue entry: "Drawing inspiration from the woods where he works, Tino believes that making by hand enriches and fortifies the soul, and that the maker should understand and be involved in all processes, from the growing and the culture of trees and woodland to the harvesting, processing and making." So far so good... "The idea that good handmade work should be accessible and not

driven by design for the sake of it underpins the attitude of the workshop."

I'm sorry Tino, you make great wood and your solar kiln project is a very interesting one, but despite your comments I found your chair rather dull.

Chris Cattle

One of the most interesting chairs at the exhibition was not a chair but a three-legged stool, not made so much as grown by Chris Cattle. Chris

"If you're selling expensive furniture, David, why are you doing it in a rain-soaked tent?"



An elegant carver from Matthew Collins Furniture Ltd (above). Peter Leathart is an amateur and made this oak library steps chair (right)



Malcolm David Smith's sculpted ergonomic chair is very comfortable and folds flat (above). Philip Koomen's *Pondlife Bench* (right). The carved reeds are from sweet chestnut thinnings grown locally, regarded almost as waste

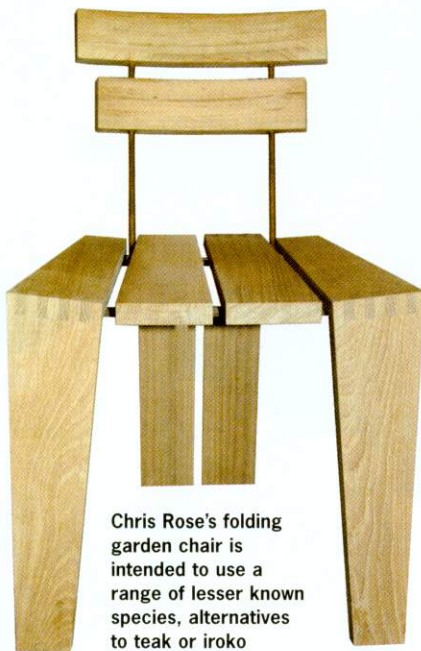


is not a craftsman but an eco-inspired ex-designer for industry. He has had the brilliant idea of adapting the training and grafting of young trees to enable the legs of the stool to be jointed together in a natural way. The three legs had not been jointed but grown together. The process takes four or five years but that's not long in the great scheme of things, and the potential of this scheme is really quite inspirational.

David Colwell

I've known David Colwell's steamed ash chairs for many years. Although I've admired his simple clean designs, it's always baffled me why he has appeared to be making variations of the same chair for the past 25 years. But his seminar piece was interesting and informative as it explained how he develops each component for what he calls 'performance'.

He went on to compare two recent chairs which, though superficially similar, were fundamentally different in structure. David has a view that if one could improve the performance of each component the appearance would improve as a consequence. Rather like

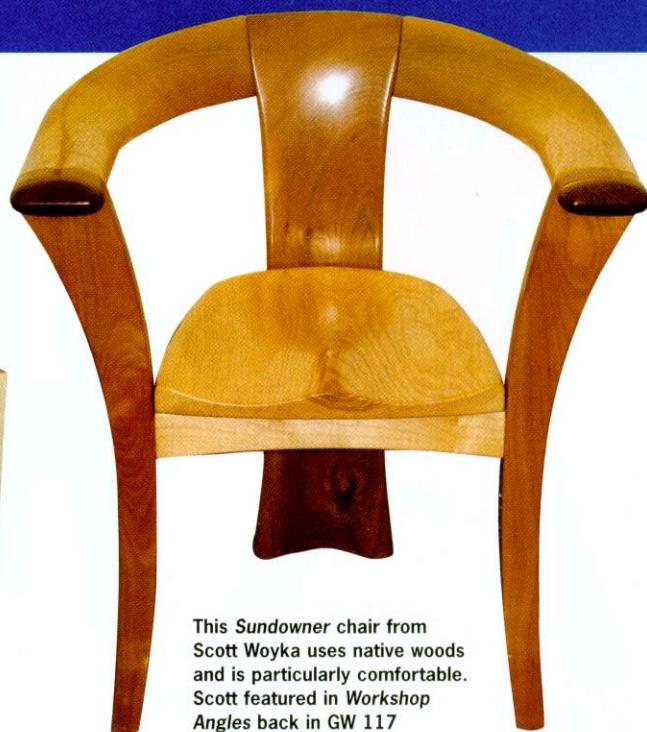


Chris Rose's folding garden chair is intended to use a range of lesser known species, alternatives to teak or iroko

the World War Two Spitfire fighter plane was a supremely efficient piece of aeronautic design and incidentally a very beautiful aeroplane. David would say 'consequently' a very beautiful aeroplane, and I think I agree.

Guy Martin

I'd never had a chance to meet Guy Martin before, even though he's a member of the same Crafts Guild as myself, and we've exhibited in the same regional



This Sundowner chair from Scott Woyka uses native woods and is particularly comfortable. Scott featured in *Workshop* Angles back in GW 117

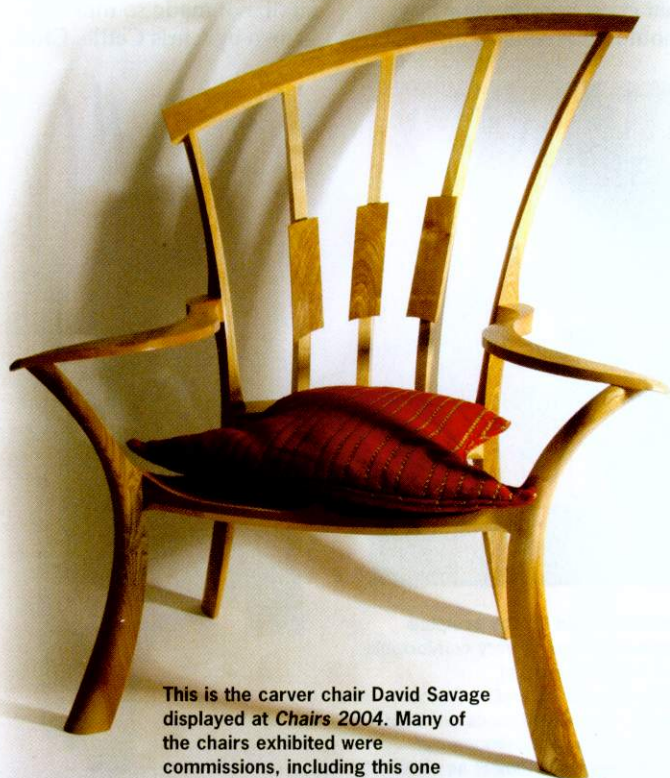
"Never pay attention to critics. They've never in their lives made anything..."

exhibition in the past. Guy's first paragraph of the catalogue entry resonated perhaps more so than any other aspect of the whole event: "For me design is a listening process. I come to acknowledge that the best craft is an act of love, sacrificing self to the nature of designing and making." Certainly most of us engaged in this activity would feel that to be a statement of some truth.

I was fascinated to talk with Guy about how he arrived at the constructional process that underpins his designs. The breakthrough

came apparently when he saw an American maker bending and pinning together round sections and smaller sectioned timbers, and laying each upon its neighbour and simply pinning it together with a brass or stainless steel pin. Again, like David Colwell, triangulation of the structures are very important. The use of the inherently strong small, bendable complete sections of willow makes a resilient and flexible structure.

Guy is using the strength of nature to his advantage, rather than as most of do,



This is the carver chair David Savage displayed at *Chairs 2004*. Many of the chairs exhibited were commissions, including this one



Keith Rand is a sculptor making landscape structures such as benches and bridges, as well as elegant chairs (above). Brian Maiden's laminated maple armchair is the latest product of an ongoing development process (right)



chopping up strong form then trying to regain strength by gluing it back together. The technology of Guy's furniture is low skill and not time-intensive, so making his products relatively inexpensive and accessible.

Scott Woyka

I've enjoyed seeing some of Scott Woyka's work at recent exhibitions but have never had the chance to meet him. Scott's *Sundowner* chair is another example of simple, elegant, comfortable chair making. It was a pleasure to meet Scott and his lovely family and be able to touch base with another furniture maker in the south west.

Switzerland

As I was moving between seminars I was collared by Alun Heslop, a chair maker from Switzerland though not himself Swiss. He showed me a portfolio of work which was in many ways far more impressive than the chair he had at the exhibition. Alun is setting up a workshop in Switzerland, and he is geographically wonderfully placed to provide a service either for the Swiss, the German, the French or the Italian-speaking, furniture-buying public in Switzerland. See his work on www.chaircreative.com.

Another person I didn't meet but wanted to was Brian Maiden, who had a lovely looking laminated armchair. Catch his work at www.brianmaiden.com.

Another on my list I didn't run across was Christopher Rose, who showed a pretty convincing contemporary chair. This doesn't surprise me as he's the programme leader for 3D Design at the University of Brighton and a visiting professor in furniture design at the Rhode Island School of Design in the USA. Catch his work on www.brighton.ac.uk/arts/research.

NEXT MONTH

David discusses the problems to overcome on his new carver chair design for Chairs 2004

Meeting with a remarkable chair



Although I'm often meeting young makers like Scott Woyka and Alun Heslop, nothing quite prepared me for meeting George Morgan. George's *Clouded Blue* was presented in the catalogue as a sketched concept. The real object was nothing short of a show stopper.

The Morgan Design team conceived a chair built around a sprung steel coil, anchored on to a large marble slab. The steel was covered in walnut with each piece buffered by a cork strip. The high back of the chair was a mixture of techniques involving granite, cockled veneer at the back filled with foam, upholstery, and solid wood joinery.

To say that this chair was technically complex would be an understatement. George's objective was "To draw attention, to shock, impress, revive

and remember" were his key words and *Clouded Blue* certainly achieved this objective. Whether they have made a good chair is perhaps another matter...

I congratulate George and the team on their work. They are young and ambitious and if you can't have a crack at an event such as this with a piece like this, then it's a poor do.

Rampant enthusiasm should never feel itself restricted by the constraints of traditional thought process. He should never allow those cold hands of convention to hold him back...

Never pay any attention to critics, George. Remember, they've never in their lives made anything, nor will they

A steel spring core is covered in gorgeous English walnut. Sections of granite (top corner) were cut with a Dremel!



ever make anything. They are content to sit on the sidelines and from their comfortable vantage points, highlight the successes or failures of those of us who do have the courage to have a go. They have never known failure, but they'll never know success either.



The back is covered in deeply cockled walnut veneer with strips of hide



Hand-woven silk covers the seat and back. The chair was finished hours before the event began...



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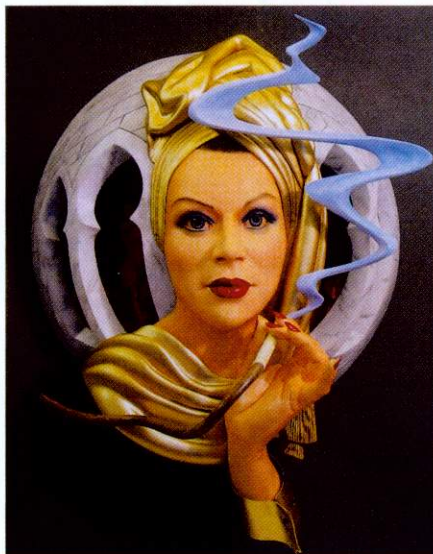
News from the wood

Pete Martin brings you all the latest news, products and gossip from the world of woodworking

Deadly sins for the 21st century

Greed is Good – to quote Gordon Gekko in the Hollywood film *Wall Street*. Vanity is a billion dollar industry and Sloth personified by the couch potato is the daily routine of tens of millions of people. Lust is so out of control that in the UK 14 year olds are issued contraceptives while Envy drives the consumer industry. The original sins, formulated centuries ago, no longer apply. Now it is a sin to smoke and get fat.

Woodcarver and artist Ian Norbury, observing the decline in standards of our society from the leaders down, has taken this theme for a new series of seven pieces. Each piece will depict an 'original sin' and Ian's perception of the 'new sins' and the first person to correctly identify the sins and explain the pieces will receive one of his original drawings.



The seven sculptures will be shown on Ian's website www.iannorbury.com through the stages of carving to the finished piece, culminating in an exhibition of all seven pieces in November.

The first of these pieces, *Seraglio*, depicts a concubine in a Turkish harem smoking her hookah pipe. It is 14in (35cm) in diameter and carved from limewood and acrylics.

Ian's work-in-progress updates, which are now viewed every week by hundreds of carvers around the world will soon be supplemented by a weekly video workshop where carvers can e-mail any problems they have, and Ian will help them out live from his studio.

The definitive book on his work *The Art of Ian Norbury* is due for release in the autumn of 2004. Look out for it!

Royal rocker

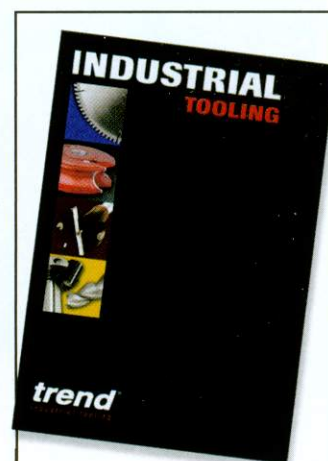
At the recent International Chair Symposium 2004 held at Westonbirt Arboretum (see page 74), one of the most stunning chairs exhibited was by American maker Hal Taylor. *Lion's Lair* was made specially for Chairs 2004, and after the

weekend event Hal generously presented this unique rocking chair to Prince Charles.

Hal is based in Vermont, USA and brought his family over to the event. Originally an electrical engineer and a biologist by education, he has been fascinated by rocking chairs for as long as he can remember. Influenced by James Krenov and Sam Maloof, Hal set out to make the world's most beautiful and comfortable rocking chairs. Judging by the interest from fellow makers, few people would disagree. www.haltaylor.com



Lion's Lair is made from the most gorgeous flamed maple. The rear slats and rockers are laminated with English walnut (actually grown in America)



Industry Trends

Following on from last month's story about Trend's new Industrial Tooling, you can see the entire range by flicking through their 160 page catalogue. This is separate from the familiar Routing catalogue, and contains spindle moulder tooling, professional sawblades, drilling and CNC machining products. For a copy contact Trend on ☎ 0800 487363, or www.trendmachinery.co.uk

Chainsaw editor

It's a hard life being Technical Editor of Britain's leading woodwork magazine. One day Andy King might be testing chainsaws for the front cover of sister magazine *SFX's Horror Special* (see right), the next he's off sponsoring a vulture named Parsnip (yes, really!) at the Hawk Conservancy Trust. Then to round it all off, he's laid up on the floor for 10 days with a bad back. But was the latter down to too much hard work or a surfeit of vultures? Letters on the subject most welcome!



Diary dates

NEWS, events,
exhibitions, shows and
courses for the
woodworker

In association with

trend
routing technology

PETER CHILDS TURNING DEMONSTRATIONS

Tony Witham

July 3

Derek Philips

July 17

Tony Witham

August 7

Derek Philips

August 21

Tony Witham

The Old Hyde, Little Yeldham,
Halstead, Essex

☎ 01787 237291

JOHN BODDY'S DEMONSTRATIONS

July 3

Woodturning - Andy Lodge

July 17

Routing - Tony Wilson

July 31

Veneering - Robert Cooksey

August 7

Woodturning - Tony Wilson

August 14

Woodturning - Simon Whitehead

August 21

Finishing - Jim Kitson

John Boddy's Fine Wood &
Tool Store, Riverside Sawmills,
Broughbridge, North Yorks

☎ 01423 322370

FREE DEMO WEEKENDS AT CRAFT SUPPLIES

July 3 and 4

Ian Wilkie - Woodturning

August 7 and 8

Jamie Wallwin - Woodturning

September 4 and 5

Mick Hanbury - Woodturning

For details contact Craft

Supplies Ltd, The Mill,
Millers Dale, Nr Buxton,
Derbyshire, SK17 8SN

☎ 01298 871636

www.craft-supplies.co.uk

DISCOVERY WORKSHOPS AT HOMEWOOD

A series of Discovery Workshops at Homewood Woodworking Machinery's Worthing showroom on the first Saturday of each month will give advice on workshop safety and setting up machinery for optimum performance, as well as

practical demonstrations of skills and techniques.

For more about the
Discovery Workshops contact
☎ 01903 216113,
www.homewoodltd.co.uk.
July 3

Polishing and finishing - Liberon

FREE WOODWORKING SHOW

June 25 - 26

Woodworking and woodturning
demos plus demos by SIP
Woodworking, Triton, Bessey

Clamps, Trend. Lots of help and
advice. 10am to 5pm daily.

Free entry and parking
Snainton Woodturning
Centre, Snainton, Near
Scarborough ☎ 01723

Shropshire Association of Woodturners

June 24

Split hollow forms -

Steve Healey

Hare and Hounds, Cruckton,
Shrewsbury

☎ 01743 240661

WOODFAIR 2004

July 10

Traditional Woodfair promoting
woodlands and local crafts -
furniture makers, boat builders,
manufacturers, etc, etc. Free

parking, Admission £5, OAPs
£4. 10am to 5pm

Roadford Lake,
Okehampton, Devon
☎ 01409 221896

Irwin's young professionals



Irwin Industrial Tool Company, formerly Record Tools, is supporting young people by sponsoring wood trade categories in this year's Skillbuild competition. Irwin is helping to raise the profile of construction skills in the UK and influence young people to consider the construction industry as a career.

Skillbuild, along with its key sponsors, enables young

people to display their trade skills in a competitive, professional and educational environment. Trainees from a variety of trades are invited from colleges and training centres to take part in regional contests. At the national final the top trainee in the UK is identified within each trade discipline. Ultimately, some go forward to represent the UK in the World Skills Competition, Skill Olympics.

Irwin and its Job Site Phoenix Team, a group of industry professionals whose role is to offer advice and demonstrate Irwin's world leading tools, will continue to support Skillbuild competitors every step of the way.

Kilimanjaro challenge

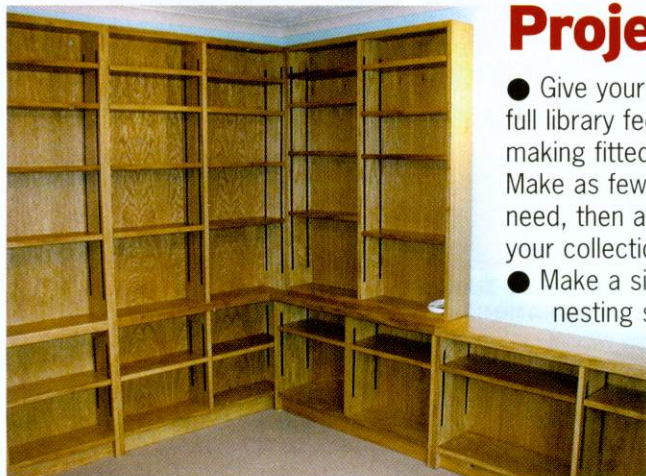
Spare a thought for editor Phil Davy at the end of July. He will be attempting to climb Kilimanjaro, the highest mountain in Africa at 5895 metres (19,335ft). A sponsored Challenge, Phil will be raising funds for the *Tigers Club Project*, a charity based in Uganda. It gives kids living on the streets of the capital Kampala the chance of starting a new life, through a programme of life skills, health education, HIV/AIDS prevention and even football! The project team provide medical help, accommodation, clothing, food, counselling and fostering.

Visit www.tigersclub.org for more details. If you would like to sponsor Phil, contact him at phil.davy@futurenet.co.uk or ☎ 01225 442244.



NEXT MONTH IN **Good Woodworking**

ON SALE
TUESDAY
JULY 6TH



Projects:

- Give your sitting room the full library feel with our guide to making fitted bookcase units. Make as few or as many as you need, then add to them when your collection grows
- Make a simple set of oak nesting side tables
- Tidy up your office with an elegant wooden in-tray
- Turn a simple glass domed cheese board and a posy vase



Features:

- Barrie Scott heads for the Pacific to see what the local woodworkers get up to in Samoa
- Jeff Gorman selects another classic piece of furniture and discusses how to design and build your own version
- With another *Celebration of Craftsmanship* exhibition on the horizon, we take a look at the best furniture designs from last year's fine show



Tools on test:

- Cordless combination drills have steadily been getting more powerful. We put 11 pro quality 18V models to the test to see which one has the power you need to get the job done
- Look out for the first test of DeWalt's brand new planer thicknesser
- Our monthly test round up of new tools uncovers Bosch's new power planer and a heavy duty bandsaw from Meber



Workshop Angles

Look out for the canoe makers of Island Falls as Workshop Angles continues its jaunt around the woodworkers of New England



Workshop guide:

- Table saws are versatile tools but it's essential to keep them safe in use. Ian Dalziel shows how to make a tenoning jig that will slice through your timber and not your fingers!



News from the wood

We review the latest woodwork books & videos

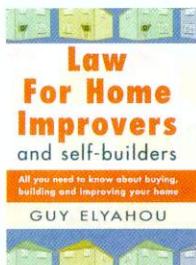
Law for Home Improvers and Self Builders

By Guy Elyahou

Published by: New Holland
ISBN: 1 84330 706 5
Price: £7.99

With property prices at an all time high and home improvement programmes flooding prime time TV, how many of you have been tempted to add that extra room, garage or loft extension to make the most of your prime asset. If you are thinking along these lines then getting a copy of *Law for Home Improvers* could be a worthwhile investment.

Written by a specialist in construction law the book is a user-friendly guide to the various laws which can affect the building process at every stage, from constructing a house from scratch to minor



alterations on an existing property. The book is divided into two parts, with clear chapter headings such as 'Planning considerations', 'Consumer rights' and the 'JCT building contract for home builders'. Illustrations, flow charts and lots of case studies and examples have been included to make this a very accessible book that can help you through the legal quagmire of home building and improvement.

Jan Evans

Law for Home Improvers

Words	●●●●●
Drawings	●●●●●
Photography	○●●●○
OVERALL VALUE	●●●●●

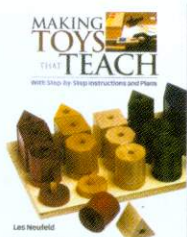
Making Toys That Teach

By Les Neufeld

Published by: Taunton Press Books
ISBN 1 56158 606 4
Price: £14.95

Most woodworkers will also be parents or grandparents and will want to make toys for their children, preferably ones that stimulate as well as simply entertain. So it's good to find a project book that provides well thought out educational toys to get stuck into, even more so when even a rank beginner can follow it and won't need an armoury of tools at his disposal.

Yep, this is a rare breed, an American book that doesn't demand a table saw. Indeed, you require little other than a bandsaw, a drill press and a belt/disc sander, as well as a few basic hand tools. With these you'll be able to make a series of fine looking toys based, in the main, on blocks



or shapes that can be stacked, threaded, arranged into patterns, etc.

The presentation is perfect, but it must be said that the instruction is a little long winded – 30 pages are perhaps a trifle too much space to devote to a toy train. But you do get comprehensive information, in the form of clear copy, excellent photos, adequate drawings and full cutting lists for every project. Each also has a page or so about its educational value. The flip side is that there are only 9 projects. But they are very nice, and small kids will love them!

Pete Martin

Making Toys That Teach

Words	●●●●○
Drawings	●●●●○
Photography	●●●●○
OVERALL VALUE	●●●●○

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July 31

SIP demos

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DeWalt Demos

August 28

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July 24

Demo by Robert Sorby Tools

October 16

Woodturning – Mararet Garrard
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19 Station Street, Bedlington
Station, Northumberland,
☎ 01670 823133/824988

ROBERT SORBY WOODTURNING DEMOS

July 10

Yandles Martock

Turners Retreat

July 24

Keenleyside, Bedlington

August 6 to 8

Good Craft Centre, Weedon,
Robert Sorby Athol Road,
Sheffield S8 0PA

☎ 0114 225 0700

YORKSHIRE WOODCRAFT WOODTURNING CLINICS

July 3

Woodturning - Tony Wilson

August 7

Woodturning clinics

September 4

Woodturning clinic

Yorkshire Woodcraft Supplies
Ltd., Finkle Street,
Cottingham, East Yorkshire
☎ 01482 844200

TURNERS RETREAT TURNING DEMOS

July 10

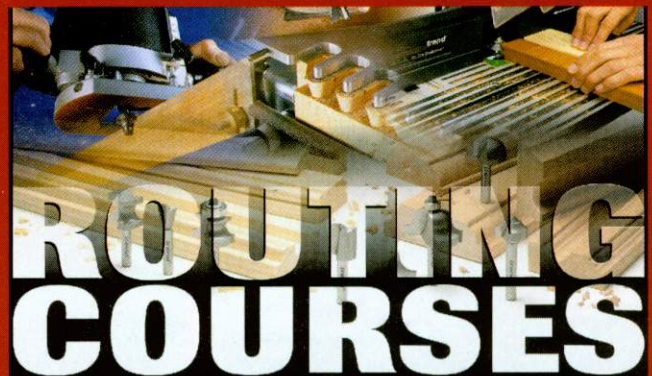
Tracy Owen

Turners Retreat, Woodturning

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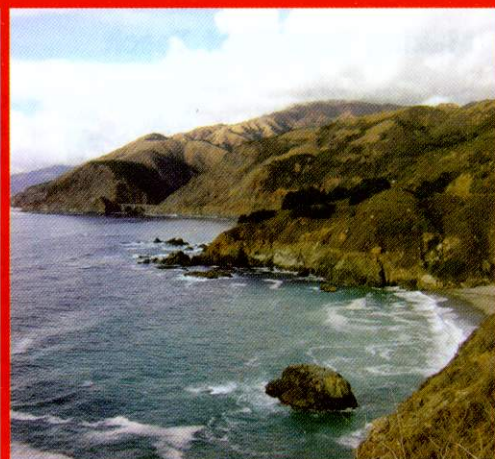
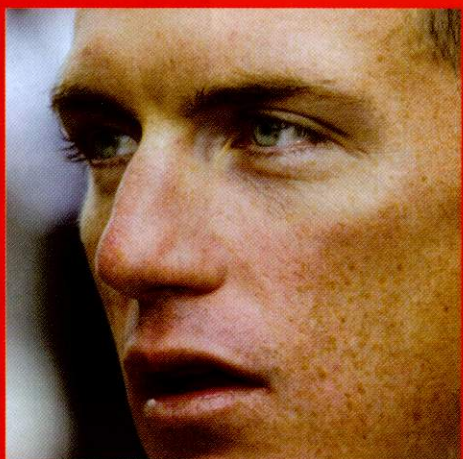
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Channel zapping



Keep all your entertainment centre remote zappers under control on your coffee table with **John Everett's** useful little holder basket

With TV, video recorder, hi-fi, and god only knows what else controlled by the little box with all the buttons these days, it seems a good idea to make a purpose built holder for all these little gadgets instead of having them drifting aimlessly around on the sofa or coffee table and getting themselves lost when they are most needed.

This project has provision for four remote control gadgets and a centre section for storage of pens and the TV papers etc. The basic construction is a base consisting of two half-lap jointed strips of mahogany with pillars of the same wood joined up with dowels.

Making the Holder

1 Begin by cutting the two strips of hardwood which will form the base. Once cut to width and length, clean up the edges and check that they are identical in width so as to ensure a good fit for the half-lap joint needed to join them together.

2 Now set up your saw to cut out the square uprights from the same material as the base, although you could use a



contrasting wood type and colour for effect if this is your preference. I used a small table saw rather than the more usual full-sized one. The uprights are 12mm. square so there is only one setting to make on the rip fence for this operation.

3 Once the uprights have all been cut to length, clean them up with fine sandpaper and then you can add the decorative detail. This involves sanding the tops at an angle of 30° to form a shallow pyramid on each, much along the lines of the top of a fence post. Most disc sanders are provided with a sliding mitre gauge but it is

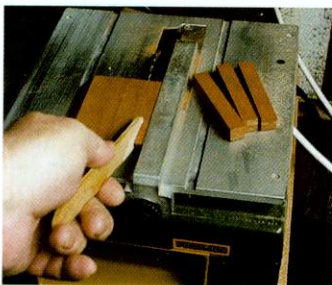
just as easy to clamp a scrap of wood at the required angle to the work table on the disc sander and use this as a guide. The angle is not of course in any way critical, but the slopes do all need to be identical to ensure they meet at a point in the centre of the upright.

4 The next step is to carefully mark out the half lap joint on the two base pieces. Take your time here as this is a classic example of 'measure twice and cut once'. Select one of the pieces to be the upper piece as this will be marked up for the fixing screws for the uprights. The clearance holes can be drilled right through this piece before cutting away the waste from the half lap as it is easier to mark accurately on the entire piece. The idea behind this is that the centre uprights' fixing screws can be ultimately hidden by the half lap joint, and the countersinks are made after the waste removal from the joint.

5 Cut the half lap joint and clean up as required. Drill and counterbore four holes on the lower piece of the base which will reinforce the glue joint, and temporarily screw them together without glue so the base is level. You can now add an edge detail with a miniature router cutter. Once this is done, the temporary screws can be removed.

6 Next drill all the holes in the uprights, making sure they all

Cutting the components



01 Make sure to use a guard as you trim the components to length. Even a small saw can bite!



02 Square off all the ends of the uprights and lay out and drill the holes for the dowels

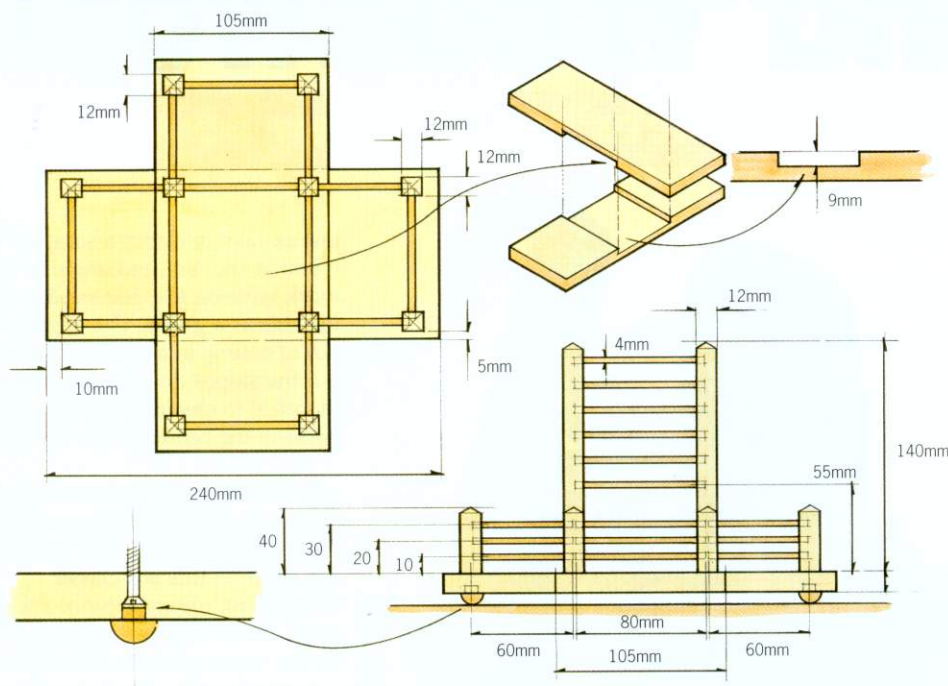


03 A temporary jig can be used for shaping the pyramid tops of the uprights on a disc sander



04 Carefully mark out the two parts of the half-lap joint before committing to the cut

CONSTRUCTION: Remote holder



line up. A pillar drill is the tool of choice here, together with some careful marking out. Once the holes have been drilled, check the base of each upright for perfect square before drilling the pilot holes ready for assembly.

7 Fit the central uprights first with a screw and a little wood glue on each, then glue and screw the two parts of the base together. The remaining uprights can now have their dowels fitted – no need for glue here – and the

uprights glued and screwed in place as you proceed. Remember that the dowels must be fitted in place as you go, as once the uprights are fixed in place, they will not have sufficient flexibility to 'pop in' after fitting.

8 Finally, add the mushroom headed 'Plug-Its' which serve the double purpose of hiding the remaining screw heads and acting as feet for the completed project. Add whatever finish you prefer.

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Base	1	Hardwood	240mm	105mm	12mm
Small uprights	8	Hardwood	40mm	12mm	12mm
Large uprights	4	Hardwood	140mm	12mm	12mm
Long rails	36	Dowel	80mm	4mm dia	
Short rails	24	Dowel	60mm	4mm dia	

The feet are 8 mushroom head 'Plug its' in a colour to match



Hide all the screw heads by counterboring the holes for Plug It domes

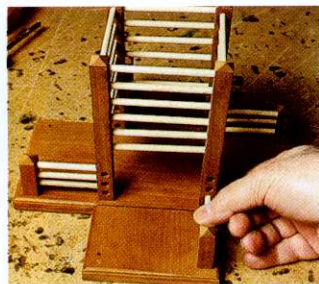
Final assembly



05 Drill both halves for fixing screws for the uprights. The central ones will be hidden by the bottom of the joint



06 Begin assembly by fitting the centre uprights to the top part of the base, then assemble the half lap



07 Thread in the lengths of dowel before finally fitting each remaining upright

CD trough



Keeping the CDs you use most tidy and accessible is the object of this trough designed by **Percy Blandford**

If you have many CD's you may keep them in a rack, but the ones frequently used are probably loose. This trough is intended to hold those CDs you want in their cases within reach. If your collection is small it could hold them all. They are kept neatly edge up and the titles are easy to read.

You can make the shelves of the trough any length to suit your needs. The suggested 250mm length will hold 22 single CDs in their cases. The rack could also be used to hold paperback books or a mix of books and discs.

The ends are the same whatever the length of the trough. The legs are halved together at the top and grooved to hold the shelves. All joints are held with glue only. You have to make four end parts: two with the shelf grooves on the same side as the halvings and two with the grooves on the other side.

Joints could be cut by hand with saw and chisel but they are more easily and accurately cut with a router and straight cutters. The ends could be left plain but they are shown moulded on the upper outer edges with a Roman ogee router cutter.

If you alter sizes, make sure the lower corners of the cases will be clear of the table top. Any wood could be used. The trough illustrated was made from oak recycled from an old drawer with the ends stained dark and shelves left the natural colour.

Constructing the CD



01 Mark out both sets of legs as one pair to ensure the joints and shelves match up on each

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Ends	4	Hardwood	180mm	38mm	12mm
B Back shelf	1	Hardwood	250mm	75mm	12mm
C Front shelf	1	Hardwood	250mm	100mm	12mm

way, trimming accurately to the lines either side of the joint first, then removing the waste with more passes as necessary.

3 Cut the end pieces to size and glue the halving joints. Check they are at 90° and ends match. When the glue has set and any necessary trimming of the joint done, mould the outer edges if you wish.

4 Finally, glue the shelves into their grooves. Check for twist and see that the assembly stands level. Apply your chosen finish. The trough illustrated was varnished.

Making the Trough

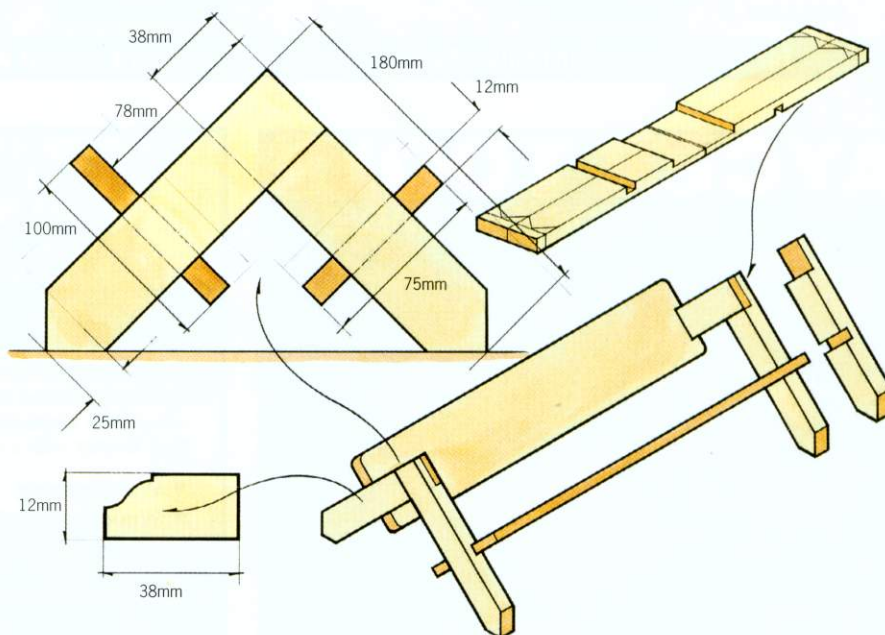
1 Prepare wood for all parts. It will be easier to hold and rout wood for the end parts if you keep it in two double lengths, because of the restricted size in relation to cramps and the router base if you work on single-length pieces.

Make the shelves first. They are the same length but different widths to allow for the standard shape of CD cases. Round the corners. A coin or washer can be used as a template. Take the sharpness off the edges.

2 Mark out two pairs of end parts, so the cuts can be as shown. The feet are cut symmetrically at 45° each way. Mark the groove widths to suit the thickness of the shelves. You can cramp the pieces together and rout across the two pairs at the same time.

Cramp on a guide strip for the router base and rout each groove to half thickness. Cut the meeting halving joints in a similar

CONSTRUCTION: CD trough



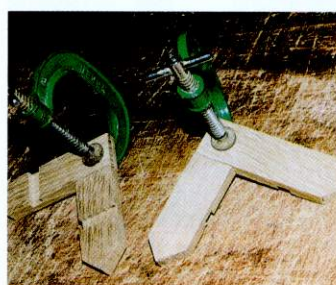
trough



02 Cramp the pair together so that you can rout the joints across both as well, using a squared guide for the router



03 You'll need to make a series of cuts to waste the halvings, but rout the cheeks to the line first



03 Assemble each pair of ends. Softening blocks will prevent the clamp heads from marking the timbers



04 Rout a decorative ogee mould on exposed edges of the ends before final assembly with the shelves

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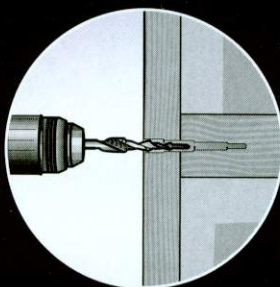
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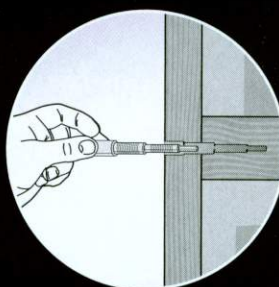
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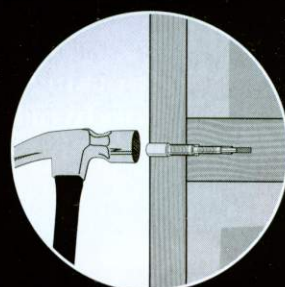
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Benchtalk

1: Steve Hopper

For the first in a series of features looking at the lives of professional woodworkers, Ian Waller talks to Steve Hopper, who manages the furniture-making courses at Bridgwater College



Q What are your very earliest memories of working with wood?

A It was a teapot stand and I was 11 years old in my first year at the local comprehensive school. The stand consisted of two pieces of pine jointed using a cross halving joint, with a piece of ply glued on top. This was then given a hearty coat of varnish. It's laughable now, but at the time I was proud of it, and of course so were my parents – they even used it!

Q When did you first decide that you wanted to make a living from woodwork?

A I was 14, now attending Cullompton Comprehensive, and I chose to do O level woodworking. At that point I knew I would end up as a woodworker, but I wasn't sure which part of the trade I would be working in. Not long after I found out that a chap called Alan Peters made good but expensive furniture in a hamlet near my hometown. I visited him to see the furniture he produced and my mind was made up, I just wanted to work there. I had to hound him to get a month's trial, as around 250

"We all have disasters, but a professional always finds a way out"

budding furniture makers had contacted him and he rarely took on new staff.

Q How did you become a college lecturer?

A After completing an informal five-year apprenticeship with Alan, I stayed on and, as my experience grew, became responsible for training any new staff. A little while later I saw the position of Furniture Workshop Manager/Instructor for Bridgwater College advertised. I was pleasantly surprised when they offered me the job. I gained various qualifications during my six years in this post, rounding it off with a Certificate of Education from Bath Spa University. I was then promoted to Lecturer/Programme Manager for our Furniture and Design Craft courses, a post I've held for the last two years.

Q What is the greatest challenge involved with teaching woodworking as an academic subject?

A Teaching the students to produce high quality work at a reasonable speed. Most amateur woodies worth their salt can turn out a saleable piece, but the professional has limited time to do this or they will not survive. Many of our students no longer need to earn a living as they are in college for self-fulfilment and we as teachers do our utmost to strike a balance between the needs of each of these groups.

Q What is your favourite timber and why?

A At the moment American cherry (we woodies do change our minds

all the time). It has a great honey colour, works easily and it contrasts well with many other timbers.

Q What has been your hardest project so far?

A After working for Alan Peters for 16 years, it's difficult to choose which was the most difficult, but on reflection I think it must be his 10-seater, Alhambra inspired dining table in bubinga and sycamore. The curved underframe was a series of descending arches, each laminated onto a curved ply core. Each section was also fluted, a real mixture of craftsmanship and wood engineering. It was the centrepiece at Alan's one man Bedales (Hampshire) show.

Q Have you had any real woodworking disasters?

A We all have disasters and there are quite a few I have made, but a professional always finds a way out. The saying goes if you make a mistake, make a feature of it.

Q What is your pet woodworking hate?

A I dislike sanding intensely, but as a professional the finish of a piece is important. I see many pieces of well-designed work that are spoilt by the finishing. It's boring as hell but it's got to be done.

Q What's the best piece of woodworking advice that you've ever been given?

A Undoubtedly the classic: Measure twice, cut once!

Q What is your favourite power tool and your favourite hand tool?

A There are so many power tools in the running but if I have to choose it must be a 1/2in collet, variable speed, plunging router, as it will do so many processes. For my choice of hand tool, a 1/2in bevel edged English pattern chisel wins, just because it is so useful for joints, locks, hinges, etc (wooden handled of course). Mine are all Marples, although I have several, some less worn than others!

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