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- Maleny Wood Expo
- Sunshine Coast WOOTHA prize
- Glue line joints
- Hanging doors
- Stanley No 52

WINNER!



Tiny Treasures p20



Bowl design p58



Serpentine chest p42



Table saw cabinet p52

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from the editor Sawdust

Driving north from Sydney to Maleny for the Sunshine Coast WOOTHIA Prize ceremony had me enjoying the pockets of ancient Gondwana Rainforests that are now protected as national parks. A thought that came to mind was that wood is solid sunshine and that some of the ancient trees in these spectacular rainforests have fossilised the sunshine that shone on them a thousand years ago! It seemed appropriate that The Sunshine Coast was the main sponsor for the richest woodworking prize in Australia. On pages 16-21 you can read about the Maleny Wood Expo and the prize winners in the four categories. The Sunshine Coast WOOTHIA Prize was won by Derek Calderwood with his amazing Queensland maple sideboard. Derek is a chemical engineer whose introduction to woodworking was to buy a Stanley No 7 plane for \$35 at a garage sale four years ago. He then went about building a shed, a bench and then a tool cabinet, honing his skills via print media, YouTube and woodworking forums. His first piece of furniture was a coffee table, the second a whiskey cabinet and his third was the sideboard for his kids' playdough and toys that won the WOOTHIA. Two weeks before the competition he removed the plywood back and installed panels so the sideboard would look good from every angle. A very humble Derek was on hand to collect his certificate. Well done and what an inspiration.

Happy Woodworking!

Chris

Chris Clark, Editor

Australian Woodsmith acknowledges the Cammeraygal people, Traditional Custodians of the land on which this publication is produced, and pay our respects to their Elders past and present. We extend that respect to all Aboriginal and Torres Strait Islander peoples today.



This symbol lets you know there's information online at: www.australianwoodsmith.com.au. There you'll see bonus cutting diagrams, articles on techniques, jigs and a lot more. If you don't have access to the internet, contact us on (02) 9439 1955.

Tips & Techniques

EASY, ACCURATE BISCUIT SLOTS

Biscuits keep parts aligned during a glue-up and provide a bit of extra strength to a project. A biscuit joiner is



an easy way to add biscuits — just turn it on and plunge. They work well when slotting ends and edges, but keeping them square on the face of a piece can be tricky. Without a reference, it's hard to hold the joiner directly perpendicular to the piece, and an off-angle cut will ruin the joint. Luckily, there's an easy place to get a 90° reference — your router table.

Clamp your piece to the router table fence as shown above. By referencing the joiner off the base, you're ensured perpendicular biscuits. To make the mating piece, remove the fence and clamp it to the table, then cut the biscuit slot.

Phil Huber

Australian Woodsmith

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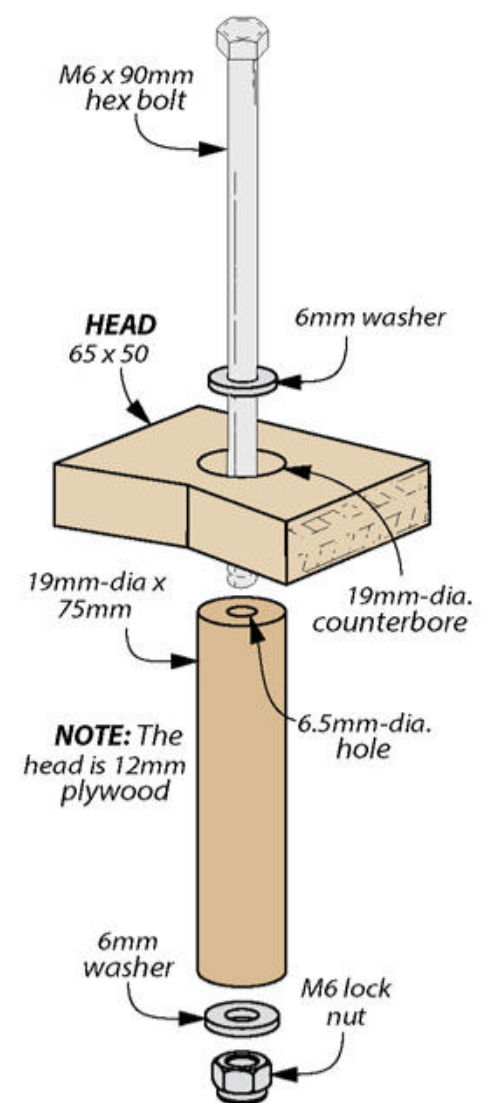
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SAFETY IN THE WORKSHOP

Safety devices, such as riving knives, guards on table saws and guards over router bits have been deliberately left out of the line drawings in Australian Woodsmith projects in order to make them easier to follow. It goes without saying that where safety devices have been supplied by the manufacturers you should use them. We encourage the use of push sticks as good work practice.

Exercise vigilance and the greatest of care when using power tools, whether stationary or portable. Keep all your tools sharp and well maintained. Wear protective eyewear, a dust mask and a hearing protector when appropriate. By limiting distractions and developing safe work practices you will go a long way to avoiding workshop accidents. So, work safe fellow woodworkers. -Editor



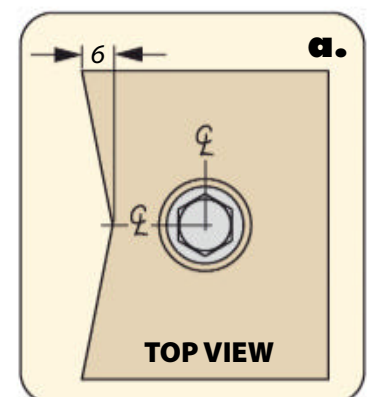
V-SHAPED BENCH DOGS

I get a lot of use out of my bench dogs, but they don't always cooperate with odd shapes. When it came time to rout a round piece, I made these bench dogs to hold it.

The head of each dog is just a shaped block of plywood that's counterbored to accept a short length of dowel. The

shallow "V" allows the head to grip round workpieces, while the dowel fits into the dog holes of the bench. A hex bolt runs through the head and the length of the dowel with a counterbore in the top. A washer and lock nut thread on the bottom hold everything together.

Marc Anderson



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DOWEL CUTTING SLED

Cutting dowel pins can be tedious, but a simple sled speeds things up. This sled doesn't take long to make, and even has a tray to keep the cutoffs corralled.

Begin by cutting the fence, sizing block and base to size. Drill a hole

through the sizing block of the same diameter as the dowels you'll be cutting.

Next, cut the tray sides to width, but leave them as one extra-long blank. Bevel the top, then cut and mitre the pieces. Once they fit neatly on the

base's end, glue up the sled.

To use the sled, first cut a kerf to determine length of the dowels. Push a dowel through the hole in the sliding block until it's flush with the end and make the cut. Repeat for as many as you need.

Len Urban



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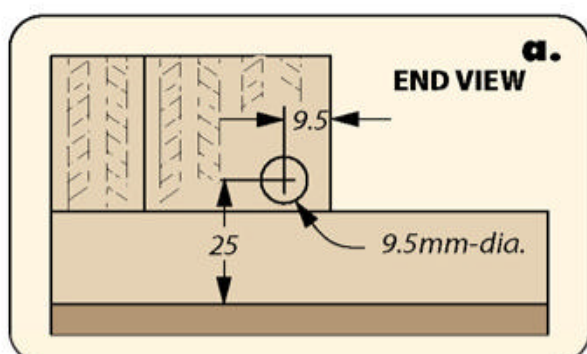
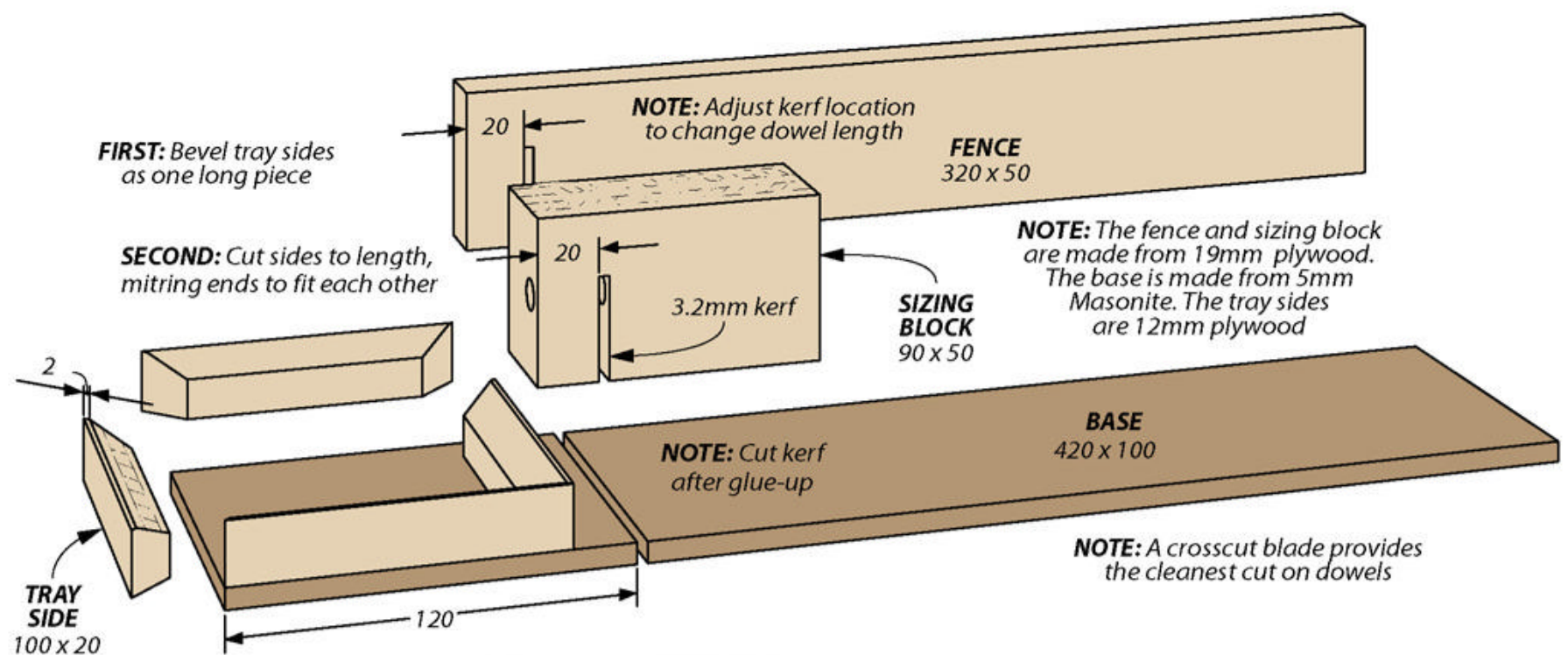


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▲ A handy tray catches the dowel pins, preventing them from rolling off the table or into the blade.

QUICK TIPS



LAMINATE SNIPPING

I don't just use tin snips for tin. Materials like laminate can be difficult to cut down to size, but tin snips work well on any tough yet flexible material. *Tom Mason*



EASY-APPLY EPOXY

I use a G-clamp to get the most out of two-part epoxy syringes. Slowly twisting the clamp down gives you precise control of how much epoxy you need, and in the right proportions as well. *Bob Bartek*

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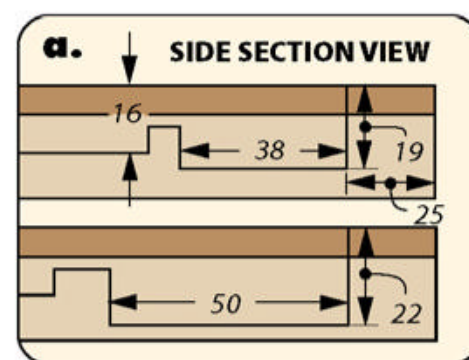
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ROUTER SPANNER & COLLET HOLDER

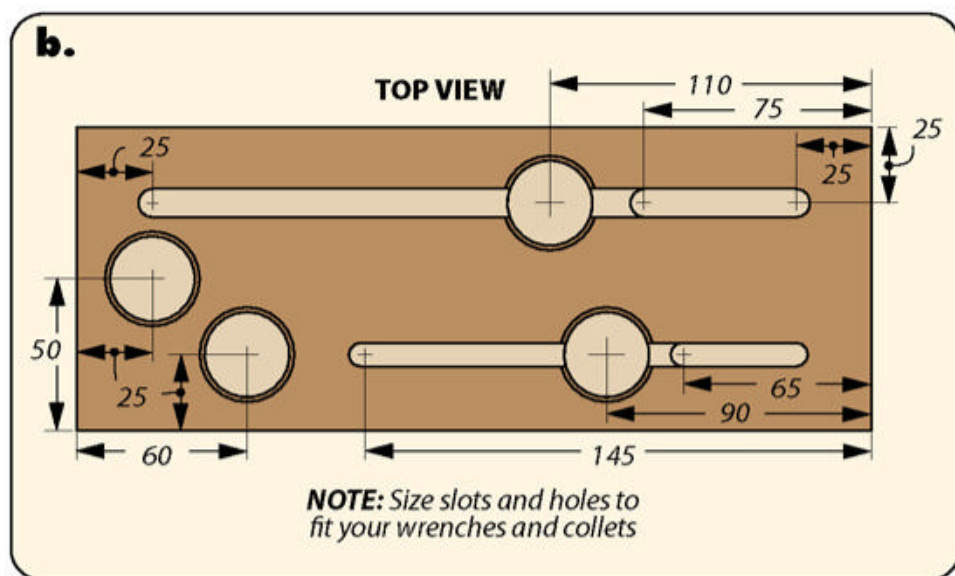
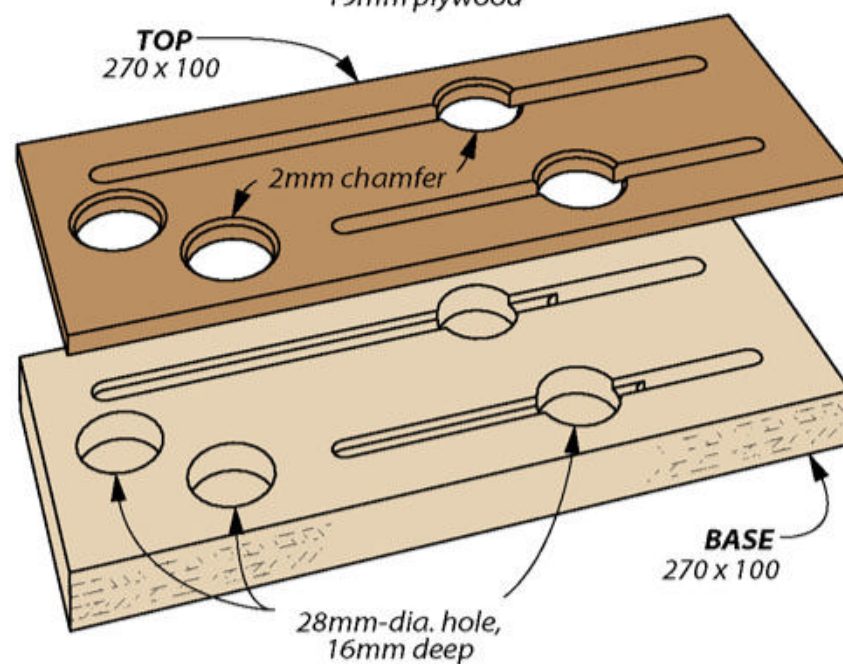
Finding spanners or collets in a crowded drawer can be annoying. To make sure they'd always be easily at hand when I'm working at the router table, I made this drawer insert.

I started by gluing up the top and base, then sizing them to fit snugly in my drawer. Once dry, I routed two slots for my spanners, making the slots deeper where the heads would sit. Next, I drilled holes for my 6.4mm and 12.7mm collets, plus two more to make room to grab the spanners. Lastly, I put a chamfer around all of the slots and holes.

Colton West



NOTE: Top is made of 5mm Masonite. Base is made of 19mm plywood



NOTE: Size slots and holes to fit your wrenches and collets



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CORD KEEPER

I had about a dozen extension cords and hoses in my workshop that needed to be organised. My solution is shown above. I drilled a series of holes along a board, about every 300mm, then cut a trench behind each hole. I ran bungee loops through the holes (as shown in the inset photo) to act as holders.

The trenches provide room for the bungees to loop around. Then I used a few screws to mount the board to the wall. To

hold the cords, all I had to do was hook the bungee loop around the ball. Now I store my extra hoses and extension cords on the wall, keeping them from devolving into the tangled mess I used to dig through.

Mark De Cain

- Trenches provide room for the bungee loops to wrap around. The ball holds the loop in place, while the bungee can be pulled across to hold up the cords and ropes.



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WORK SHARP BENCHSTONE SHARPENER

Work Sharp manufactures a wide range of sharpening systems for both knives and axes. This little benchtop model is designed for the kitchen and not the workshop (however you can hone chisels on it with ease). The pre-set yellow angle guides at each end can be reversed

so that the honing angle can be either 20° or 25°. You rest the knife on the guide and then draw it across the plate. The Benchstone plate has three sides and gives you the choice of a coarse 320 grit diamond plate to remove chips and to set a new honing angle, followed by a

600-grit plate that further refines the edge. You finish the sharpening by honing on the white ceramic plate. No water or oil is required with this system. It is as easy as that! If you are honing a curved knife, you unlock the plate (the red slide on the base), and allow the plate to swing free as you guide the blade across the abrasive. The system is intuitive and easy to use. No more blunt knives (or scissors) in the kitchen. Available from Tool King (toolking.com.au).

Cool Tools, Books and Gear

MELBOURNE TOOL COMPANY SMALL ROUTER PLANE

The guys at the Melbourne Tool Company have gone back to first principles and designed this amazingly little powerhouse from the ground up. The base of this little router is cast in one piece, honed flat, and has a footprint of 93 x 74mm. The beautifully machined adjustment knobs make the router look like a little creature and just ask you to use it as a paperweight in between times! The standard 6mm blade locks tight in its groove and has no hint of vibration as it cleans out trenches and refines grooves. The hefty 425gram weight of the plane gives it momentum when you are using it, while the organic cast shape welcomes your thumbs to settle in just the right spot when you use the tool. There are five additional blades that have been machined in 1mm increments, allowing the tool to be used for refined work as well as robust cleaning up of joints (melbournetool.com).



SILICA GEL CANISTERS

Little paper packs of silica gel are commonly found in the packaging of items that might spoil or rust if exposed to moisture. They are disposable and usually have a message printed on them saying "Do Not Eat". These clever 110 x 55 x 12mm aluminium canisters are filled with the same silica gel and have the message IF GREEN. REACTIVATE 3 HOURS at 250F (125°C).

The canisters are designed to slip into plastic bags full of shotgun shells so that the gunpowder remains dry and reliable. The silica gel absorbs any moisture in the bag and locks it down in the gel. When the window in the middle changes to green all you do is pop into a warm oven until the window turns orange.

There are many uses for these clever little canisters. You can pop a couple in your chisel or plane drawer and know that they will keep rust at bay. You can pop one in your telescope or binocular box and know that the optics will not be spoilt by mildew or moisture. The canisters are widely available online and prices range from \$10 to \$20 (ebay.com.au).



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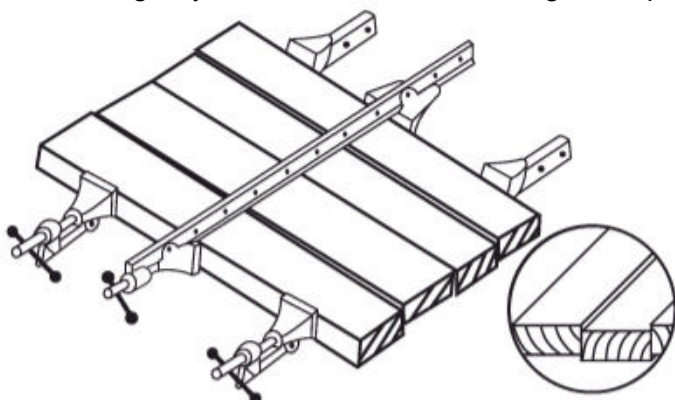
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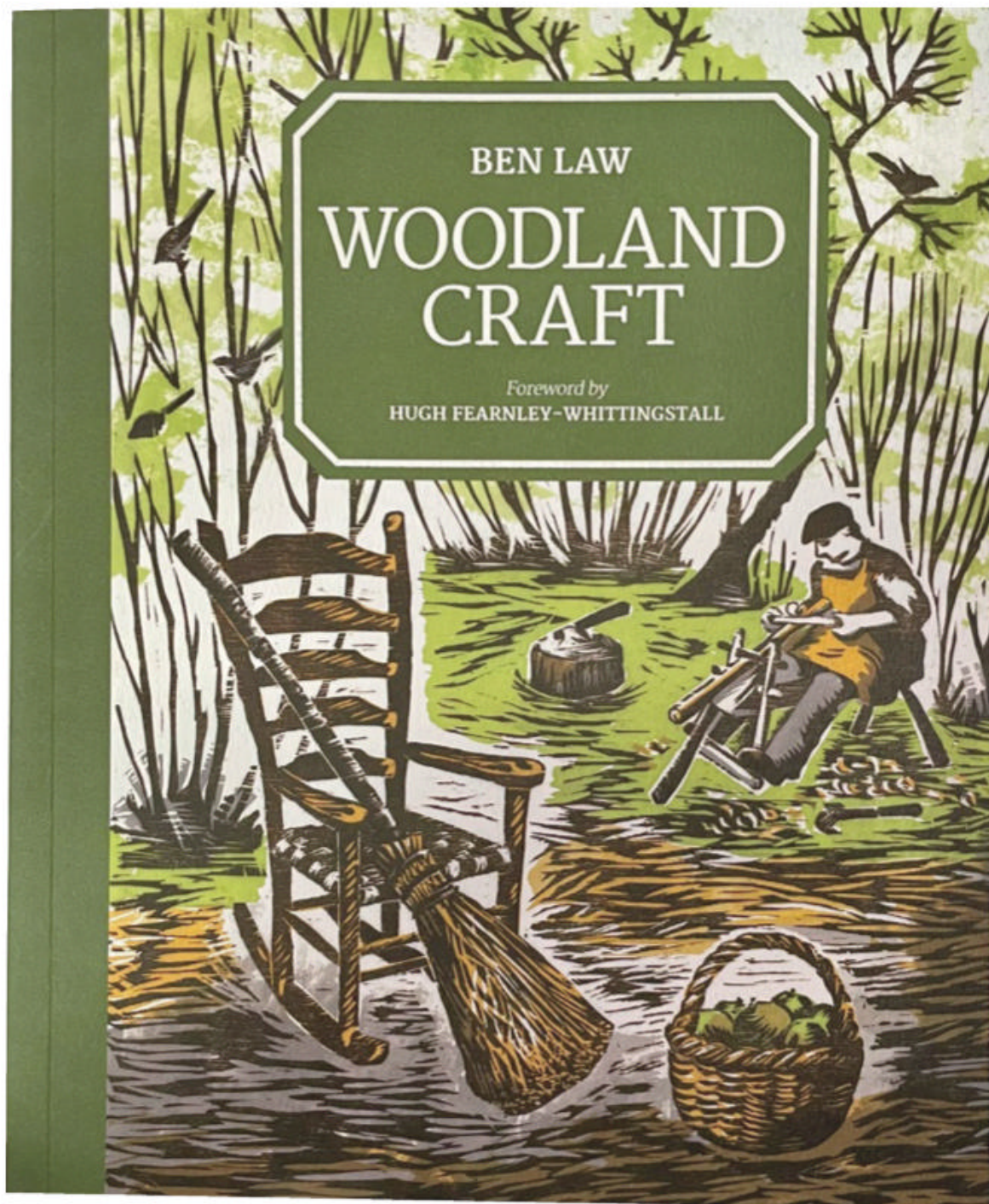
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WOODLAND CRAFT

In simpler times European and British landscapes would have been dotted with managed woodlands that supplied the local communities with baskets and brooms, rakes and chairs as well as firewood and

charcoal. Industrialisation took the craft out of most communities and had the workforce move to the cities to gain employment.

Ben Law has been an advocate for a simpler, more sustainable lifestyle and has championed the re-wooding of woodlands in England. This delightful book is encyclopaedic when it comes to what can be done with a well-managed woodland and how it benefits the human soul as well as the environment.

Chapter 1 introduces the woodland as a resource that needs to be managed and respected. Chapter two details the ten most common tree species found in Britain and what each tree is best used for. Chapter 3 is dedicated to crafts for the farm and garden, 4 is all about fuel, 5 is about making shingles and shakes, timber framing and how to make a yurt. Chapter 6 is dedicated to domestic crafts and takes you step-by-step through the carving of spoons, the making of a stool as well as several chairs. The final chapter is dedicated to the tools required for the craft and the machines that can be crafted from woodland lathes, poles and logs. Published by GMC Publications (gmcbooks.com/woodland-craft/).

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Maleny Wood Expo

The largest woodworking event in Australia continues to impress!

The Maleny Wood Expo "from seed to fine furniture" was established in 1996 and has grown to become the biggest woodworking event on the Australian calendar.

One reason for this is The Sunshine Coast WOOTH A Prize of a mighty \$10,000 for the piece of fine craft that is deemed by the judges to be without peer. There are also three other prizes of \$2,500 to be won in the categories of Furniture, Sculpture and Tiny Treasures.

The event is hosted by Barung



▲ **David Harriman.** Pa's Spurs. Huon pine and salvaged Radiata pine. The spur strap is the dovetail link to the competition.



▲ **Colin Miller.** Doves in Love. Eight pieces of termite-eaten dead wood cast with resin and joined at the tail with a dovetail joint.



▲ **Simon Begg.** Dovetail German ring turning. Camphor Laurel. This clever turning process is perfectly suited to the production of wooden toys.

Landcare on the premise that sustainable production and biodiversity conservation can be complementary processes. By walking the walk for so many years Barung Landcare helped the region to gain international recognition in 2022 as a UNESCO biosphere.

THE COMPETITION

Every second year the WOOTH A prize has a theme. The theme for 2023 was "Dovetails" and was open to be interpreted as the woodworking joint, a dove and its tail or a tale in its own right. As you can see to the left, David Harriman carved his Pa's spurs. The original leather strap that holds the spurs in place is called a "dovetail spur strap" hence the link to the competition.

The amazing "Doves in Love" by Colin Miller are linked by a dovetail joint at the base of their tails. The Dovetail German

ring above is a tour-de-force of turning technique and is truly awesome.

Three judges spent Friday morning with their clipboards looking for the winners and followed the criteria listed below:

Furniture that rejoices in all aspects of furniture making, traditional and contemporary, design, artistry and innovation. Sculpture that highlights carving to its fullest extent from the delicate to the robust, abstract to representational. And "Tiny Treasures" that celebrate works of smaller dimensions that are big on design and craftsmanship - beautifully designed and exquisitely crafted.

While judging these categories they also kept a weather eye out for the overall winner of the Sunshine Coast WOOTH A prize.

That same evening (after a welcome to country) the winners were announced.



▲ **Matty G** cutting to the line and working his magic with one of his STIHL chainsaws.



▲ Three hours later and a full scale carving of his dog emerges from the camphor log.



▲ **Dave Johnson** (DidgEra) captivating the crowds with his didg, saxophone, hand drum and flute.

A COUNTRY SHOW

The three-day Expo itself began in earnest on Saturday morning. The Visitors' Map listed 110 stalls around the showground and in the pavilions. Most of these were dedicated to woodwork in one form or another. Carbatec, Japanese Tools Australia, Vermec, C & L Tool Centre, Boatcraft Pacific and Arbortec were just a handful of the stalls that were selling tools and equipment.

The most popular type of stall were the ones selling planks, boards and raw slabs of timber.

Live music from the Maleny Music Tent wafted across the showground as hungry visitors queued in lines at the food trucks offering a wide variety of cuisines.

Small boats were on display as well as tiny houses. There were 19 different workshops and activities on offer, from spoon making to walks along the creek to see platypuses at play.

By 11am Saturday morning the carpark was full! I have never seen so many people at any expo or wood show. The team that put the show together deserve high praise for the organisation of the weekend and the blending of so many different woody and environmental elements, food trucks, excellent entertainment and perfect weather together.

After three years of COVID lockdowns everybody was in a mood to celebrate creativity in its many guises.



▲ **Mountain Mushrooms** had kits on offer plus logs inoculated with Shiitake spores.



▲ **Gerald Rensen** from Jesse Engineering showcased his clever ball turning jig and the special tungsten carbide extension arms crafted specifically for Aussie timbers.



▲ The "Jellyshake" stall was brimming with all you need to make your own electric guitar.



Sunshine Coast Wootha Prize Winners

Australia's richest woodworking prize has been on sabbatical for three COVID years. WOOTHHA 2023 showcased amazing talent and awesome craftsmanship.



After the winners of the Tiny Treasures, Furniture and Sculpture prizes were announced the overall winner of the WOOTHHA prize was made known. A very humbled and surprised Derek Calderwood made his way through the crowd in the Main Pavilion and accepted his certificate.

LAUTISSIMUM

As you can see above "Lautissimum" is a sideboard crafted from Queensland maple with more than just a nod to mid century design influences. The Artist's Statement on the piece read: *Cabinet carcass is made from a single, re-sawn and book-matched board of quarter-sawn stock. The cabinet interlocks the base which is a wedged mortice and tenon construction for strength and visual effect. Finished externally with Danish oil and all internal surfaces are waxed for protection.*

The following day I caught up with Derek and discussed his cabinet. The amazing chatoyance in the book-matched door panels was achieved with a wet sanding process using Danish Organoil and a series of grit sizes up to 600, followed by careful buffing. Derek explained the name Lautissimum is the gender neutral Latin adjective for clean, elegant, refined. He then went on to reinforce that he felt very humbled winning the WOOTHHA and that there were some spectacular pieces in the competition with some very impressive displays of craftsmanship - many examples of skills and techniques he is yet to try or master. He was honoured to have his work in the same category as some of these makers.

Not bad for a self-taught woodworker who made his first piece just five years ago!

FURNITURE PRIZE

Garan Hale won the \$2,500 Furniture prize with his stunning Stella stool.

The Artist's Statement on the stool read: *A dovetail inlaid into the seat of a stool. Three-legged breakfast bar stool using laminated, carved, inlaid and turned components.*

The detail in the feathers is just ex-



traordinary. The outer fan of twelve feathers is cleverly book-matched on contrasting spines (they really do look like feathers!). Adding an inner fan of six smaller feathers complements the outer fan and adds contrast and depth to the piece. The skill and time to craft these feathers and then to inlay them into a curved "tractor" seat is just awesome. The seat itself is beautifully carved and looks good from every angle. The wedged legs and the laminated foot rail complete the picture, creating a stunning piece that is both stable and playful.

SCULPTURE PRIZE

The \$2500 Sculpture prize was won by Robert Howard with his amazing Lily Light.

The Artist's Statement read- *I have attempted to carve a very delicate light shade, as delicate as a dove's tail, thin enough to become translucent (like a feather) when*

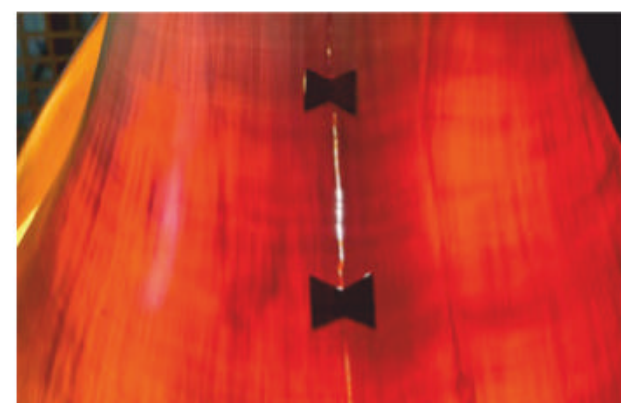


▲ **Robert Howard.** Lily Light. Recovered Huon Pine Sustainable Timber Tasmania.

the light is switched on. I estimate that this will require it to be, in the most part, around 2mm thick. The shape of the light is like an upside down Lily. It will be entirely hand carved, using traditional gouges and chisels.

When I first saw the shade I thought it was steam bent over a luthier's bending iron. Just incredible that the shade is carved by hand. The use of dovetail keys to stop the propagation of the crack turns a flaw into a design feature. All the elements work in harmony together. The counterweight and the fittings contrast perfectly with the translucent Huon pine.

Turn the page to see who won the Tiny Treasures prize.



▲ Butterfly dovetails lock the crack in the 2mm-thick translucent Huon Pine.



Garan Hale. Stella.
Red Cedar, River Oak, White Cedar, White Beech, Tulip Oak, Blue Quandong, Silver Ash, Silky Oak and pigeonberry Ash. Winner of the WOOTH A Furniture prize.

Tiny Treasures

Australian Woodsmith proudly sponsored the \$2500 WOOTHHA Tiny Treasures prize.

TINY TREASURES PRIZE

The genius behind the Tiny Treasure competition is that it opens up the WOOTHHA prize to creative makers across this wide brown land and challenges them to distil their creativity into a standard Australia Post-box and post it to Maleny. No need to make the pilgrimage and hire a trailer to deliver the project, just a description of the idea, an acknowledgment that it fits the criteria and the Maleny crew will post you a post-it pack! The standard size in 2019 was 130 x 130 x 110. That standard has since changed, however the folk at the Wood Expo have purchased years worth of Post-It packs and will stay with the size limit for the next couple of years.

The entries to the competition were many and varied and of exceptional quality, however the judges were unanimous in awarding the Tiny Treasures prize to Hape Kiddle for his delightful netsuke carving of Storm Boy and Mr Percival. The carving reflects the spirit of Barung Landcare, it has man and nature working together, different species being at one when it comes to looking after the planet.

Hape Kiddle is one of Australia's most preeminent carvers in wood. He can do huge and small with the same aplomb. Hape is a gifted teacher (we profiled him



▲ Hape's netsuke carving of Storm Boy cuddling Mr Percival won the Tiny Treasures prize.

in Issue 148) and is fast becoming a recognised leader in his creative space.

The Artist's Statement that was posted next to his piece read: *A dovetail is the bringing together of two different materials to make one form. The pelican (in the story of Storm Boy) is rescued by the child and in the ongoing relationship rescues the boy from loneliness. Their relationship is a dovetailing of necessity. A deep bonding of two very different creatures. By extension I hope to speak to the need of developing such a relationship with the living world. To dovetail in.*

Hape himself has spent his life "dove-tailing in" to nature and has a passion to share his insights with anybody interested in his online and person-to-person courses. The netsuke carving of Storm Boy and Mr Percival is crafted from leftover boxwood from an instrument maker. Australian Woodsmith is honoured to hand over a cheque to such a wonderfully creative and generous spirit!





▲ **Andrew Warwick.** 80th Birthday Box. Red Cedar & Gum, Silky Oak, Jarrah, Huon Pine.



▲ **Donal Kelman.** Cage of Balls in Gidgee and Leopard wood. A tour-de-force of technique.



▲ **Brian Dawson.** Wee Treasure Box. Red Cedar and NZ Kauri. Dovetails in every direction.

AWESOME ACHIEVEMENTS

As you can see on these pages there was a wide range of interpretations in regard to the Tiny Treasures challenge.

Ian Wilkie used two of the miniature planes that he crafted to make the spalted mango and jacaranda presentation case to house the tools in.

Andrew Allen hand cut each dovetail in his box of 260 pieces. The inside of the box is just as beautiful as the outside.

Hana (aged 12) and her dad Steven did a great job crafting an owl out of ash and redgum.

Robin Cromer ticked lots of boxes with the four boxes he created as a showcase of both clever techniques and dovetail joinery.

Brian Dawson crafted a beguilingly beautiful Wee Treasure Box that played with the shape of a dovetail.

Donal Kelman is truly a woodworking genius who poured many hours into the crafting of balls inside balls. The finish and the technique is second to none. Just amazing!

Andrew Warwick's 80th Birthday Box celebrates the colours of Australian timbers in a delightful way.

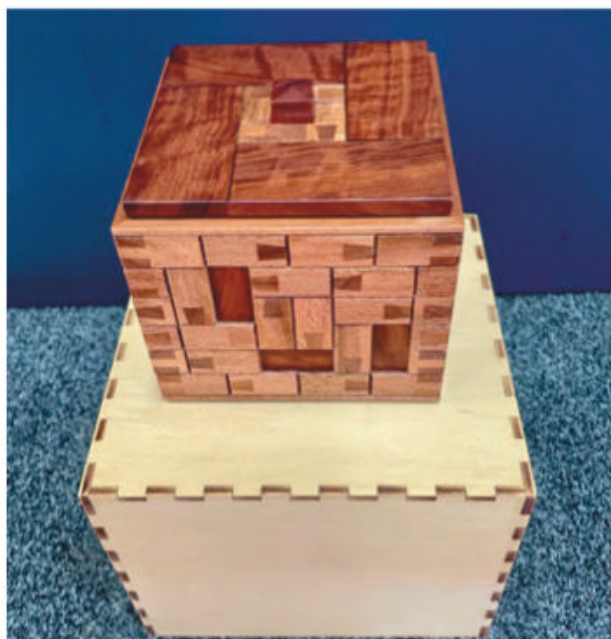
The challenge for next year's winner will be to create a beautifully designed and exquisitely crafted piece that stuns the judges. The competition will be open themed and is bound to be impressive. **W**



▲ **Robin Cromer.** Of Doves and Tail. Silver Ash, Queensland Walnut, Huon Pine, Red Cedar & Rose Mahogany. Beautifully refined and proportioned joinery.



▲ **Hana and Steven Gould.** Dad and Daughter Double Dovetail Owl in ash and redgum.



▲ **Andrew Allen.** Dovetail Patterned. Old Man Banksia, Mahogany. 260 pieces in total!



▲ **Ian Wilkie.** Treasure Trio. Spalted Mango and Jacaranda. Awesome detail and refinement.

Reversible Glue Joint Bit



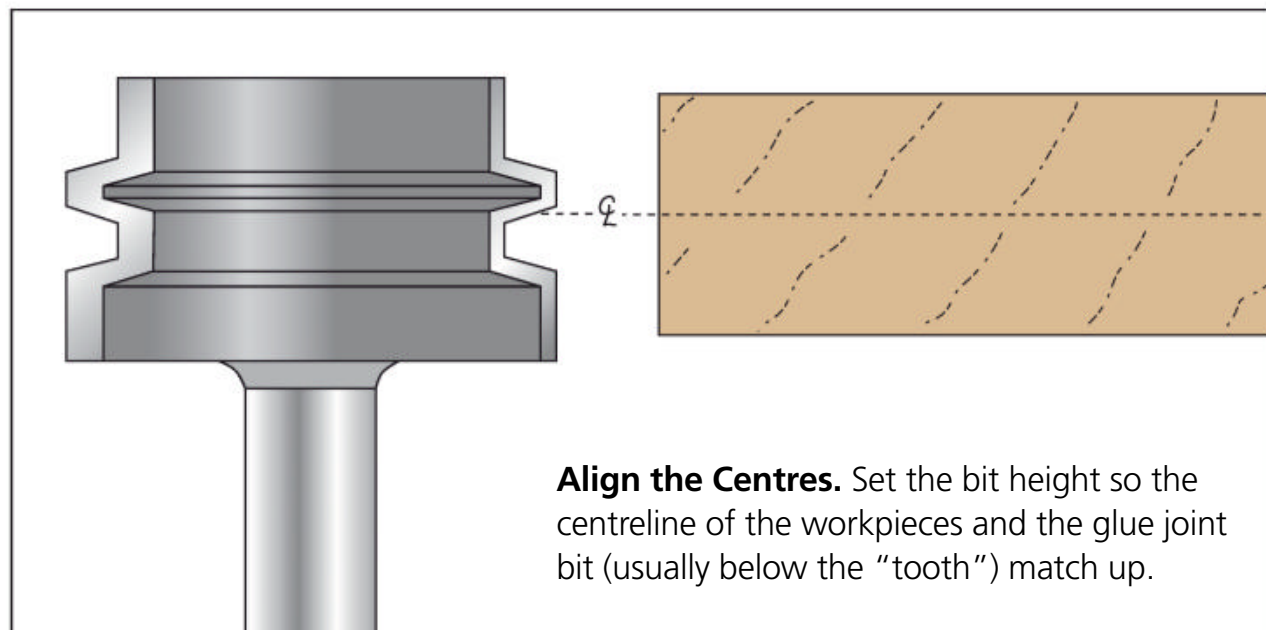
▲ The reversible glue joint bit cuts both sides of the joint from the same position on the router table.

Big panels can be a pain. Keeping all the pieces of a tabletop flush during a glue-up can take almost every clamp in the workshop. And if that surface doesn't end up entirely smooth, a planer won't solve the problem. The only option then is to break out the hand planes and get ready for a workout.

There's a simple solution I've found for these big panels: a reversible glue joint bit. The joint it leaves ensures the panels lock in place and remain flush. There are a couple of types of glue joint bits, but the

one we're looking at here is a reversible glue joint bit. The name comes from how the joints go together: simply flip a piece and the edge fits right into its mating joint.

WHY USE A GLUE JOINT BIT? The glue joint bit pictured at left creates a tongue and groove on each edge. This allows it to register with the piece beside it, making it far easier to keep everything straight while gluing and clamping a panel. While I wouldn't use this bit for every glued panel, the joints made become more helpful the bigger your panel is.



JOINT QUALITY. A reversible glue joint doesn't add much to a panel's strength. Glued-up panels are already quite strong when simply butting the edges together. The long fibres of wood hold firmly when glued together. It's a common saying that the wood itself will break before the joint does. While I can't say I've put this theory to the test, I've never seen anything to contradict it.

The glue joint bit shines when it comes to aligning joints and keeping them flush throughout a glue-up. While the initial set-up can take some work, it pays off during assembly.

SET-UP. When getting ready to use a glue

joint bit, first make sure all your pieces are planed to equal thickness. While planing your pieces, plane a few extra test pieces as well. As you'll see on the next page, the adjustments needed can be quite minute. You could make a number of test pieces to help you dial in the bit height, or a few extra-wide ones that you can trim the edge off of if it doesn't fit.

BIT HEIGHT. When setting up the router table, you'll need to make sure the centreline of the bit aligns with the centreline of your pieces, as shown in the drawing above. For most reversible glue joint bits, the centre is right below the “tooth” of the cutter that forms the groove in the

workpiece. Unless you've got luck on your side today, it's going to take some finetuning to reach the correct height, but simply marking the centreline on the piece and eyeballing the bit height will work for now.

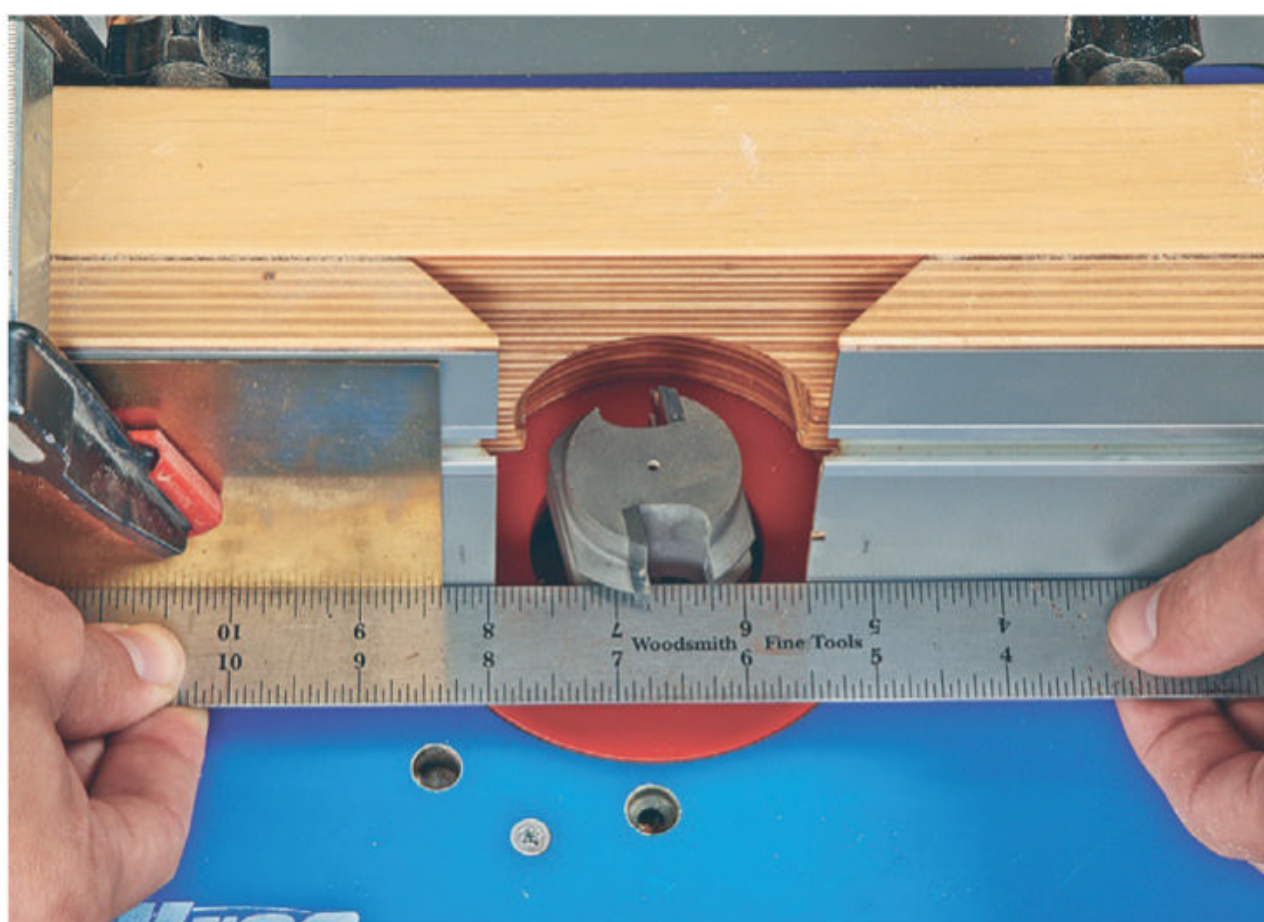
FENCE. Use a ruler to help set the fence, like you see in the photo below. The key is a spacer attached to the outfeed side of your router fence to support the piece after the waste is removed. I clamped a thin scrap of brass to the fence for this.

From here, the fence should be set so the spacer sits flush with the innermost edge of the cutter on the bit. This will be where the tongue is cut on the workpiece. Setting these to match ensures the spacer catches the workpiece and prevents it from sniping at the end of the cut.

KEEPING STRAIGHT. When using a glue joint bit, I recommend you cut the joints and glue up the panel right after sizing and planing the pieces. I usually find myself working with long pieces when using these joints, as even a little warping can keep the joints from lining up with each other.

On the flip side, the glue-jointed edges will pull together easily once they do line up. The angles of the tongues and grooves that the bit makes slide in place with each other as they're clamped, pulling them into alignment. This saves a lot of clamps, as you'll no longer need one on each mating edge to keep the panel flush.

ROUTING. Now it's time to rout. Start with the test pieces, marking out their centrelines and setting the router bit accordingly. Mark the test pieces so you'll know how the bit needs adjusting, then cut them. Now check the fit and flip to the next page to finetune the joint.



▲ Attach a thin spacer, such as a plate of brass, to the router fence, then use a ruler to set the fence's depth. Set the fence so the spacer is at the same depth as the innermost edge of the cutter.

FINDING THE HEIGHT

Now the real work of using a reversible glue joint bit starts. You may go through a number of test pieces while you find the perfect fit, but once you've routed a good joint, remember to keep the pieces.

DIAGNOSIS. The first step is to see how the joint fits. You can see my marking system at right, and it's pretty simple. I mark the first edge I cut as 1, then I mark the second edge as 2, knowing it needs to be flipped to fit with the first. By fitting the two test pieces together and using the illustration, you can see how to "dial in" the fit. As I mentioned before, make small adjustments when setting the height. Since the pieces reverse to fit together, any adjustment you make is effectively doubled.

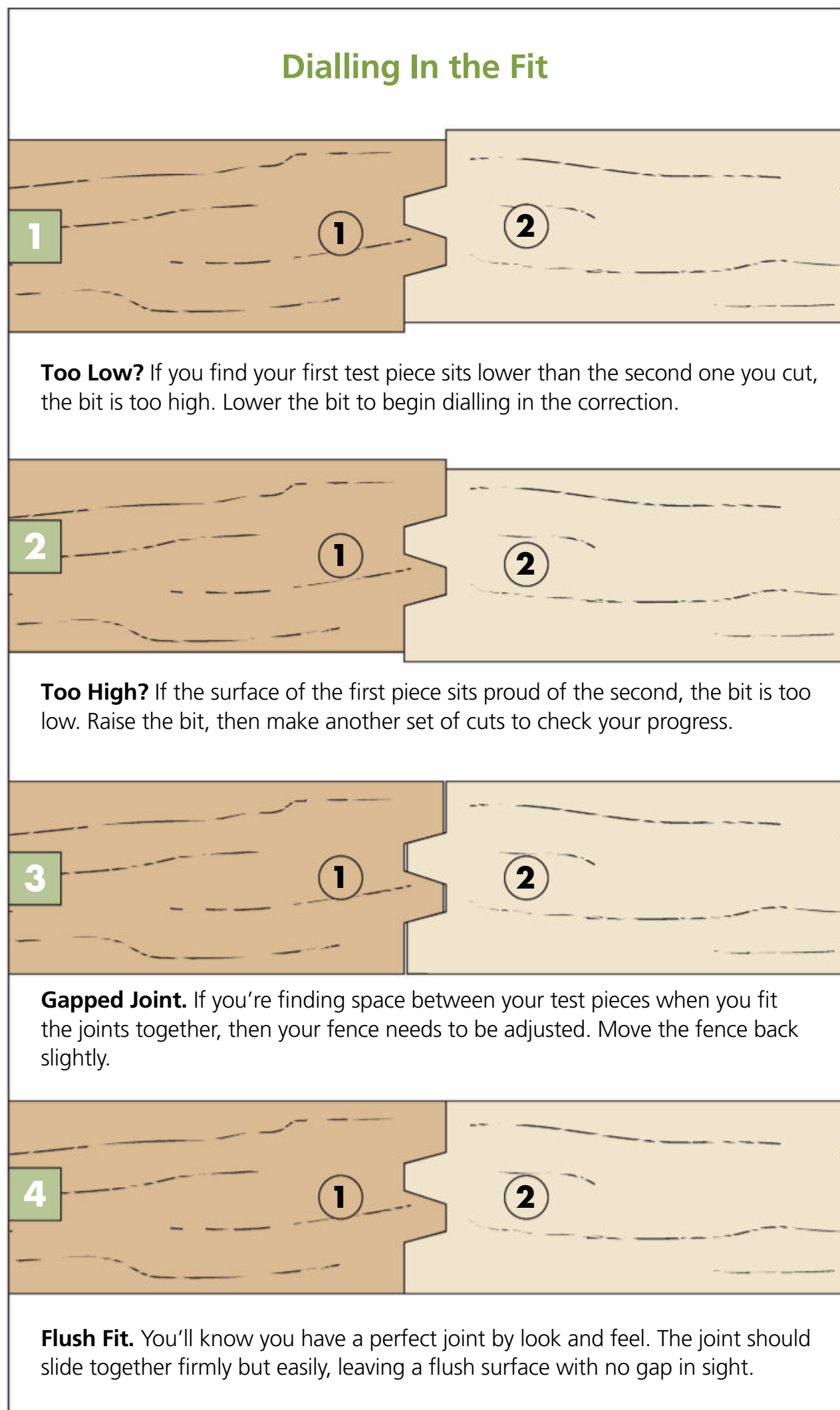
LOWER THE BIT. In Figure 1 in the drawings at right, the first piece cut sits lower than the second one. This means the bit is too high. Lower the bit slightly, then make another set of test cuts.

Remember how far you turned the crank, and compare it to how much the offset was adjusted. This is a good way to begin gauging how to adjust the router bit. Paying attention to this will make your subsequent adjustments go quicker.

RAISING THE BIT. If you find the first piece sits higher than the second, then you face the opposite problem: the bit is too low. Raise the bit slightly and make another set of test cuts. Do the same as with lowering the bit, paying attention to how far each adjustment moves the joint on each piece.

ADJUSTING THE FENCE. If there's a gap between the tongues and grooves (as you can see in Figure 3 above), then the fence is set too deep and the bit isn't making a full depth cut. Move the fence back slightly, using the ruler as shown on page 23.

SNIPE. On the flip side, you may find that some pieces have a bit of "snipe" on the back end, as you might find when using a planer. You'll certainly hear and feel if it happens. This means the fence is



Too Low? If you find your first test piece sits lower than the second one you cut, the bit is too high. Lower the bit to begin dialling in the correction.

Too High? If the surface of the first piece sits proud of the second, the bit is too low. Raise the bit, then make another set of cuts to check your progress.

Gapped Joint. If you're finding space between your test pieces when you fit the joints together, then your fence needs to be adjusted. Move the fence back slightly.

Flush Fit. You'll know you have a perfect joint by look and feel. The joint should slide together firmly but easily, leaving a flush surface with no gap in sight.

too far back, causing the piece to move at the end of the cut. In this case, move the fence forward.

When you adjust the fence, be sure the bit is turned so the cutter is as far forward as it can go. Making sure the cutter and shim are aligned exactly is key to positioning the fence properly.

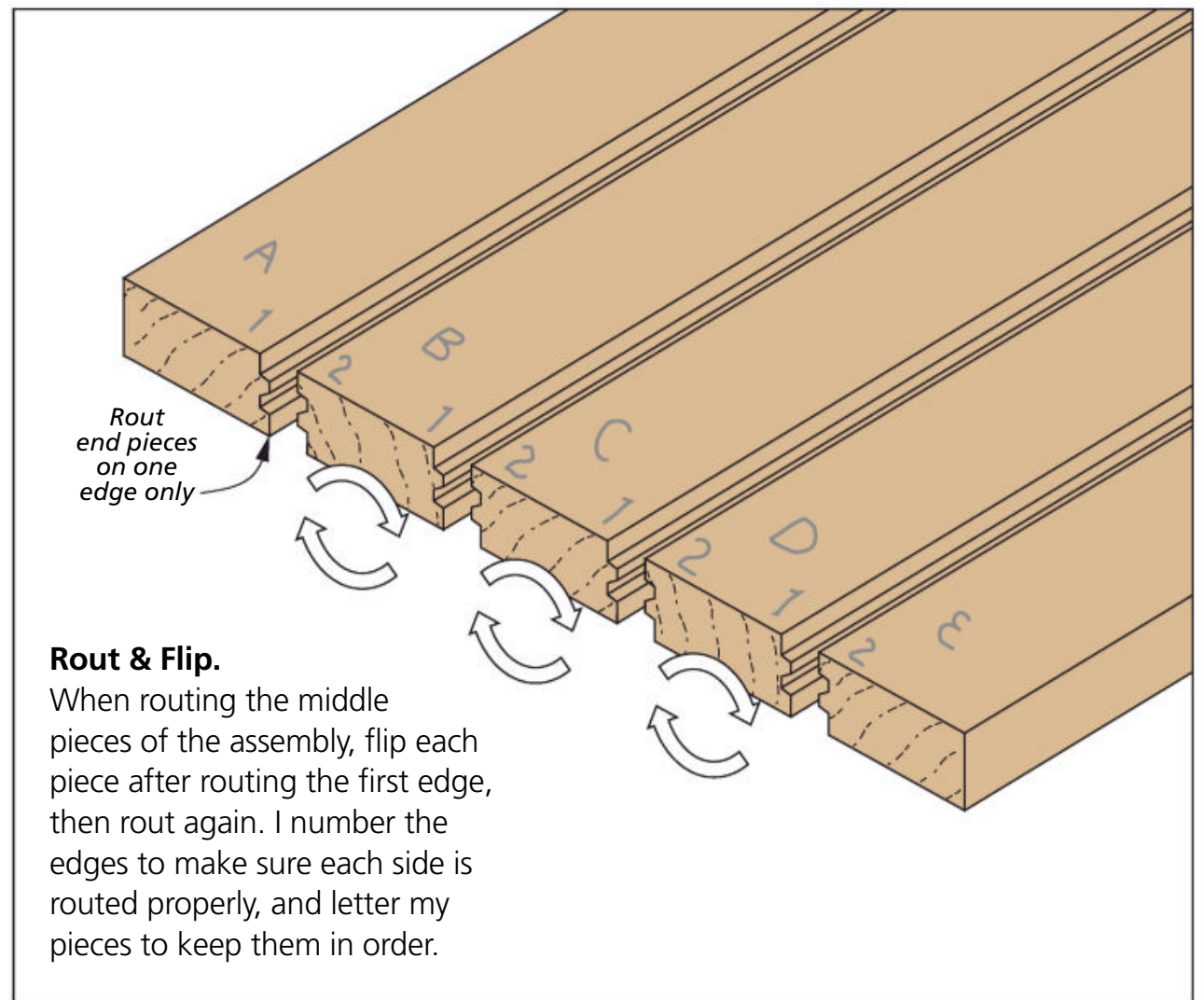
A PERFECT FIT. You'll know you have the perfect fit when the pieces fit flush together, with no gap on the surface or in the joint. Because of the angle on the tongues and grooves, the pieces should slide easily into each other. Set the test pieces aside for future reference and get ready to rout.

ROUTING FOR REAL

Now the actual pieces can be cut. Chances are you'll be gluing up a number of boards at once, and there's a bit of strategy required here. Because this glue joint mates with its reverse, each inside piece will be flipped after cutting the first side, while the end pieces will only have their inner edges routed. You can see this illustrated at right.

To be sure I'm routing and assembling the pieces as intended, I mark the edges the same way I marked the test pieces: one for the first side, two for the flipped side. I also letter the pieces to be sure the interior ones don't get mixed up.

THE GLUE-UP. Once all pieces have been routed, it's time for the glue-up. You'll find the gluing goes much smoother with these routed edges than with simple jointed edges. Apply a thin layer of glue over the tongues and grooves of each edge. As for clamps, you'll only need them to pull the far ends together. Because of the angle on the tongues and



Rout & Flip.

When routing the middle pieces of the assembly, flip each piece after routing the first edge, then rout again. I number the edges to make sure each side is routed properly, and letter my pieces to keep them in order.

in the grooves, clamping at the ends will force the boards to sit flush, so no clamps are needed to keep the assembly aligned.

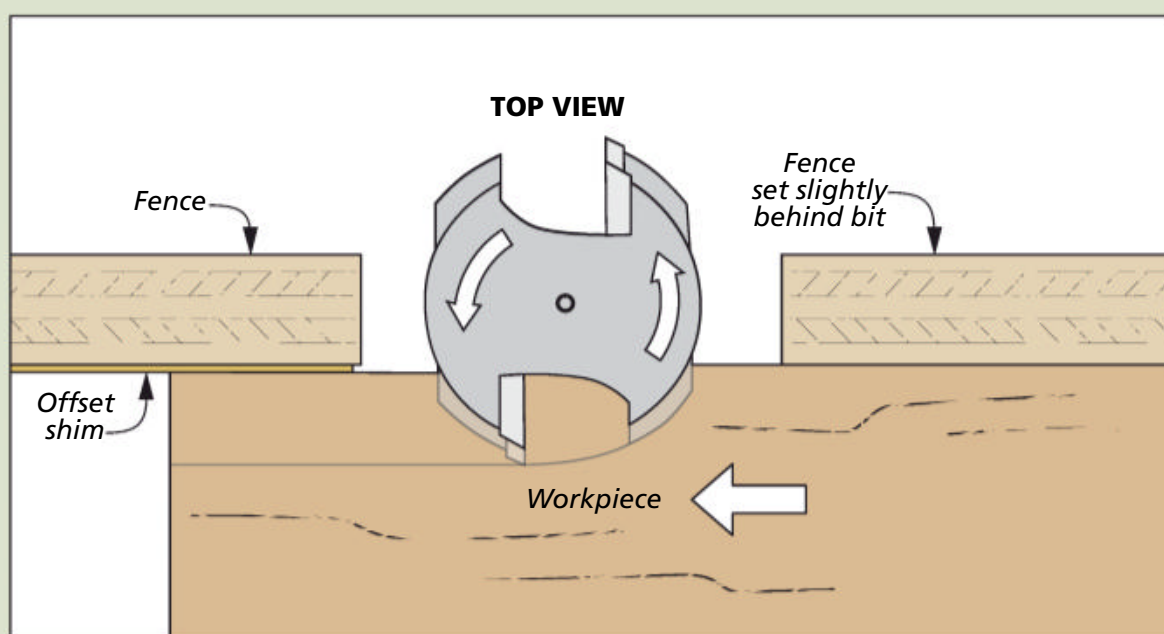
After the glue-up, the surface should be flat (except for squeezeout). Remove any excess glue and sand the surface for a perfectly smooth panel.

THE "JOINT" IN GLUE JOINT. One nice thing about reversible glue joint bits is that when preparing the actual pieces, there's no need to joint an edge before you rout it. Because the cutter covers the whole length of the bit, it will joint the piece while it cuts the profile. While I would reserve this for straighter, cleaner stock rather than rough timber, this does make these glue joint bits particularly useful for woodworkers still building their tool collection, allowing them to make panels without needing to have a jointer available.

While you probably won't be using a reversible glue joint bit for every workshop session, it can be a handy bit to have in your arsenal. After dialling in the height, the bit simplifies large glue-ups and minimises the amount of clamps needed (along with the stress of getting everything in place before the glue sets). When a planer isn't going to be an option, having a way to ensure the panels stay smooth can be a godsend.

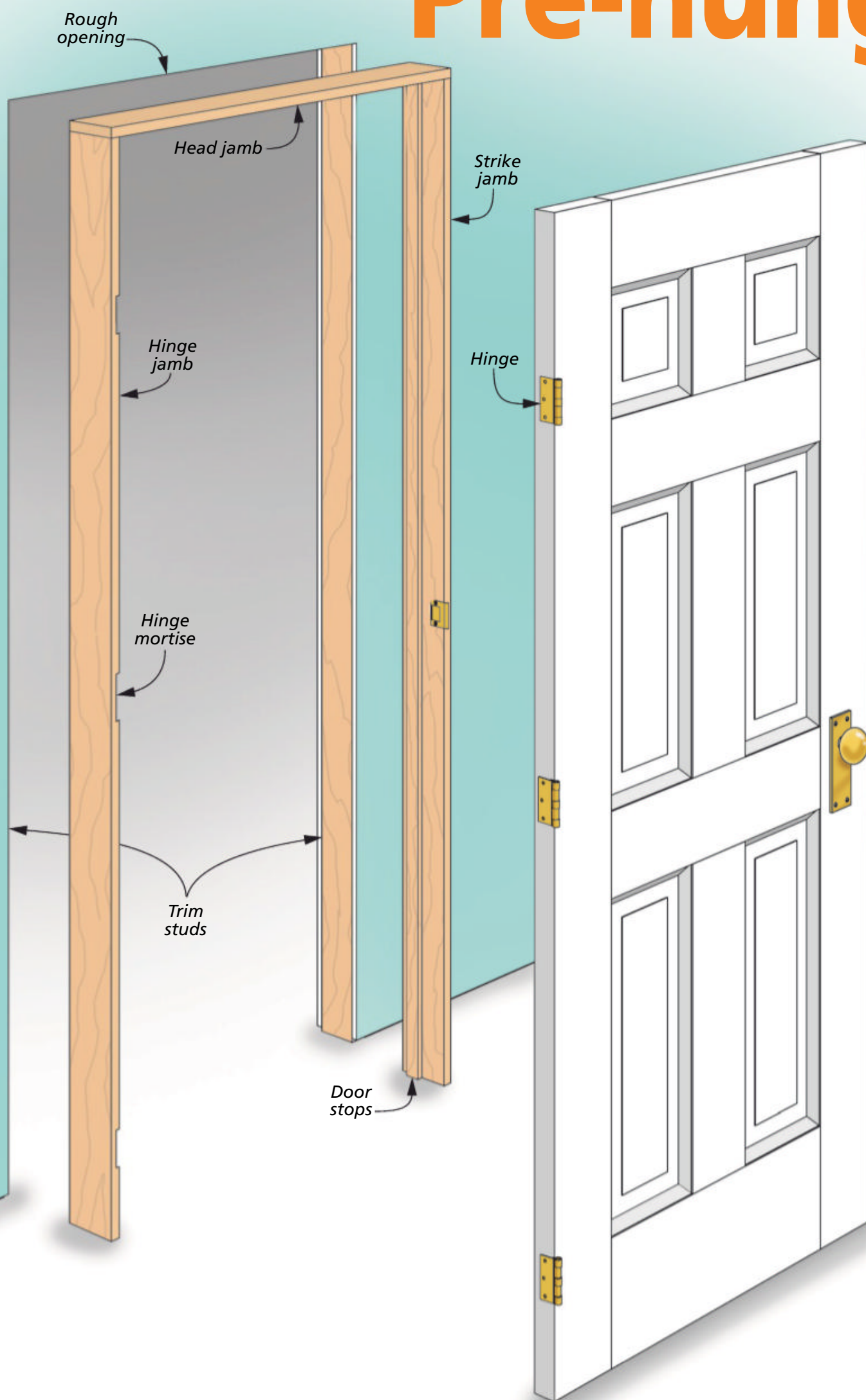
Using the right tool for a job makes a big difference in the quality of a project. The router is a fantastic tool for the number of jobs it can perform — if you have the right bits. The reversible glue joint bit is a handy tool for tricky glue-ups, and that earns it a place in my workshop. **W**

JOINTING & JOINERY



Router Jointing. On a reversible glue joint bit, the cutters extend for the whole length of the profile. This allows the bit to joint a piece while it cuts the glue joint, eliminating the need for a jointer.

Installing a Pre-hung door



Trim carpentry is a close cousin of woodworking. Hanging a door is the first in a series of articles exploring this branch of the family tree.

Hanging a door is one of the main tasks of a trim carpenter. Trim carpentry is woodworking on tour. Like a band on the road, working outside the controlled environment of the studio (or your workshop) presents new challenges. The main challenge being that trim carpentry is woodworking that's attached to, or integrated with, something larger.

That larger thing in this case is a wall in your house. Trim carpentry is the art and craft of blending rough framing and precise woodworking. It can be a lot of fun when you know ahead of time the challenges that you'll run into and how to tackle them. Let's take a look at those challenges, starting with the anatomy of a pre-hung door.

A PRE-HUNG DOOR

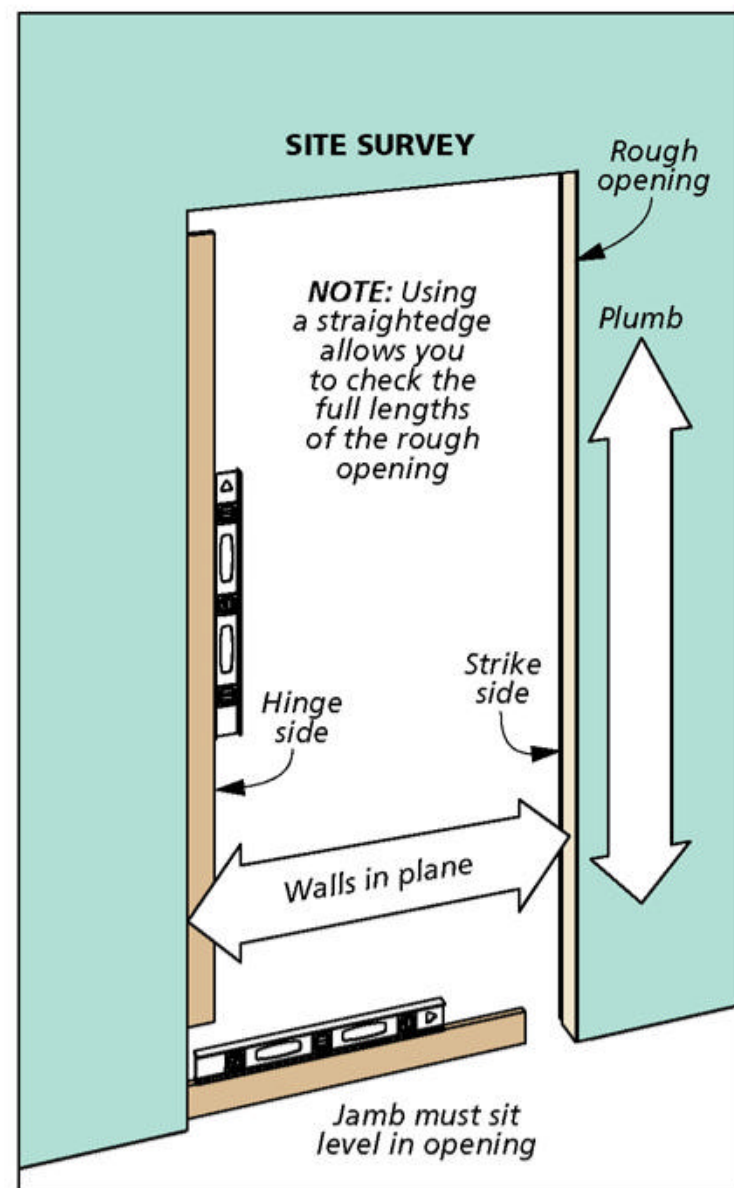
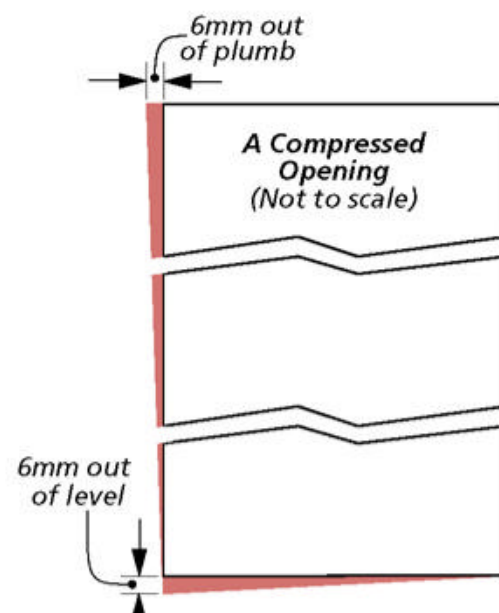
The main drawing you see on the previous page lays out all the working parts of a pre-hung door. What you have is a wood slab or panel door that's attached to a three-sided wood frame. The three frame parts are the head jamb, hinge jamb and strike jamb. The door is attached with hinges to the hinge jamb of the frame. The hinges are mortised into the door and frame. The hinges hold the door flush to one side of the jamb frame. I'll call this side the "hinge," or "reveal," side of the door.

On the other side of the pre-hung door are the door stops. (The "stop" side of the door.) The door stops prevent the door from swinging too far into the jamb. The stops also work in tandem with the door knob and strike plate to hold the door closed without any rattling.

For the sake of simplicity, the door we're hanging resides in a standard 90 x 35mm wall that is sheathed with 13mm Gyprock. This means the jamb width is 118. (It's wider than the wall to help the trim casing fit better.)

OTHER DOOR DETAILS. If you're responsible for ordering the door to go into the rough opening, an easy way to figure out the width is to measure the rough opening and subtract 50mm from the measurement. Unless you're in a very old house 2040mm is the standard height of a door.

Also, in this article, I won't go into what's called the "hanging" of the door, which is about how the door swings. Just take a picture of the existing door and



the room it's in and let the fellows at the order desk of the home centre, or one-stop door shop help you figure that out. Second hand doors are also an option. They are often made of solid timber and, once filled and painted, can look just as good as a new door. Besides saving some cash you can also help the planet by reducing the need to plunder rainforests. Also, if you are renovating you can relocate old doors and reuse them in the new build. When you've got your door on site, it's time to get to work.

SITE SURVEY

Surveying the site, which in this case is the rough opening, means doing a diagnosis of the area where you're going to hang the door. The drawing above shows an example of what I'm talking about. There are two things to focus on in this site survey; the floor, and the side of the rough opening where the hinge jamb attaches. Let's start with the floor.

THE FLOOR. For the pre-hung door to operate properly it has to be level and plumb in the rough opening. So the first thing to check in the rough opening is the level of the floor. For the sake of this demonstra-

tion we'll say that the floor is 6mm low on the hinge side of the rough opening as is shown in the detail above.

If you're working on a finished floor, such as a hardwood or tile floor, you'll need to trim the strike jamb 6mm. If the floor is a rough subfloor, you can place a shim under the hinge jamb and remove it later.

Also, be mindful of the flooring treatment that goes on top of a subfloor, you might have to lift the whole pre-hung door off the floor to account for carpet and pad. Or you can trim the bottom of the door later if need be.

THE WALL SURFACE. The wall on both sides of the rough opening must be plumb and in plane to each other. If they're not, the jamb will be twisted in the opening. The results are that the door will stick out of the jamb at the top or bottom. So, this is the time to make sure the wall surface is in plane.

THE HINGE JAMB. Plumbing the trim stud that the hinge jamb attaches to is the most important step in this whole process. To get an exact reading on the stud you need a level long enough to span the hinges on the door.

If you don't have such a level, you can extend the reach of your two foot level with a straightedge like you see in the drawing on the previous page.

Now as earlier, we'll say the hinge jamb is out of plumb at the top by 6mm. So we need to use shims to bring the framing back to plumb. Let's look at shims and other hardware you need to install a pre-hung door successfully.

SHIMS & FASTENERS

There are two types of shims that I use in three different ways. Plate shims are just 75mm square pieces of scrap plywood in varying thicknesses. A plate shim is used to aid in plumbing the opening, but also they give you the option of sliding the whole door in the rough opening. Technically, you can do this with wedge shims, but you'll use up a lot of them, and they can be a little unwieldy in the process.

Wedge shims are narrow, tapered pieces of wood that I've cut out of clear stock. You can buy pre-cut shims that work fine. These shims, when used in pairs, with the tapers opposing each other, provide you with infinite adjustability.

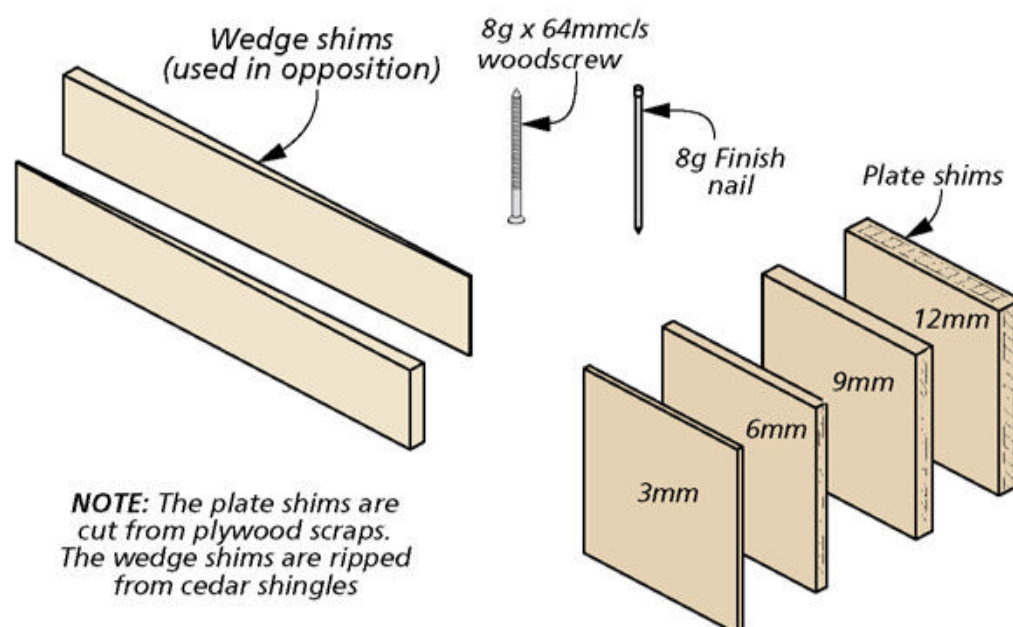
I use the wedge shim in two ways. First, as anchor shims to lock the hinge jamb in place. And to provide solid support above and below the strike plate on the strike jamb. The second use is as support shims. Once the anchor shims are in place, I fill the gaps around the jamb with these pairs

of shims just to stiffen the jamb.

The fasteners used to hold the shims and jamb in place can be traditional finish nails (8g finish is what I use) or your nail gun with 15 gauge, 64mm nails, and 8g x 64mm c/s woodscrews. So, I've provided you with the basic set-up and tools, now it's time to install the door.

JAMB ONLY. You can install a pre-hung door with the door and the jamb together, or, remove the door and install the jamb

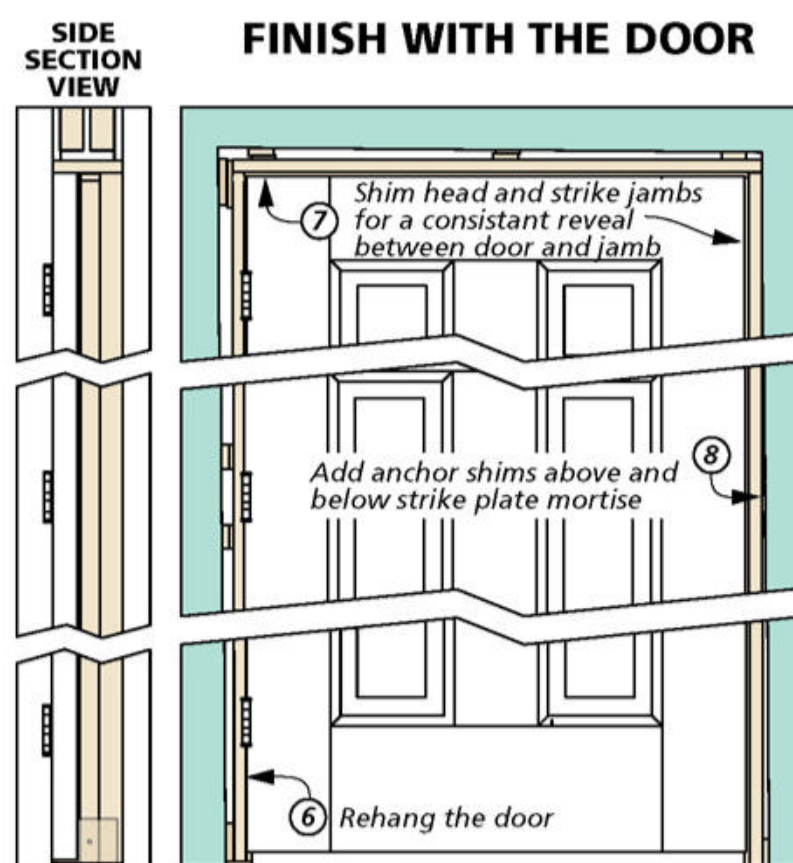
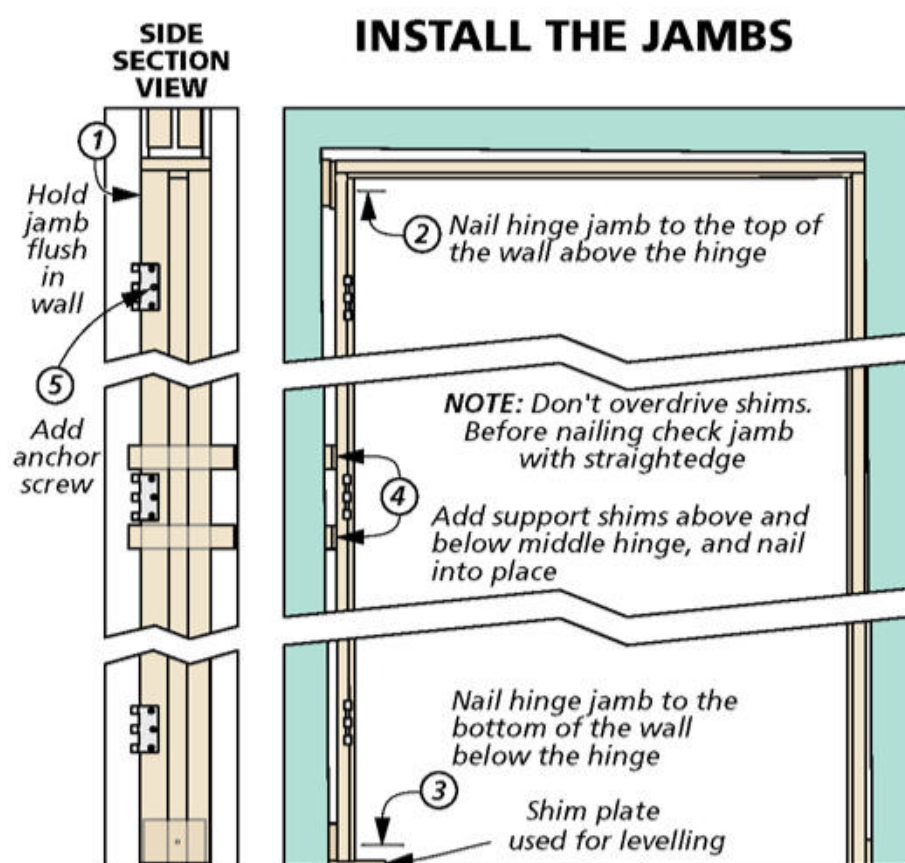
The Supplies



without the door in the jamb. The latter is the way I always install solid core doors. They're just too heavy to manoeuvre while you're trying to set the hinge jamb. Here, for the sake of clarity, I've separated the door from the jamb as you see below.

HANG THE DOOR BY THE NUMBERS

The left drawing below shows the initial preparation of the rough opening and the jamb in place. The floor, under the hinge



jamb leg, has a narrow 6mm shim plate to level the door in the opening. This can be removed later, when the door is hung.

The stud behind the hinge jamb has several shim plates attached to it. To centre the door in the opening there are two 9mm shim plates attached at the top and bottom of the stud. Then to plumb the door, add the 6mm shim plate at the top. Now let's walk through the whole process.

1 — FLUSH FIRST. Start by placing the jamb in the opening, you're going to focus on the hinge jamb side first. Remember, on page 27 we did the site survey and found that both sides of the wall opening are plumb and parallel to each other. So all we have to do here is hold the hinge jamb flush to the wall, confirm it's plumb and nail it in place

2 — FIRST FASTENER. Nail the jamb to the wall above the top hinge. You can use a screw here as well. Drill a pilot and countersunk hole first.

3 — SECOND FASTENER. Now move to the bottom of the hinge jamb. Hold the jamb flush to the wall and nail the jamb to the wall. But first, double check the jamb with your level.

4 — SUPPORT SHIMS. Slide a set of support shims above and below the centre hinge. Using the long straightedge, make sure the jamb surface is flat, not bowed or con-

caved, then nail the centre of the hinge jamb to the wall.

5 — SCREWS. Now, back at the top hinge leaf, replace the upper centre screw with a long woodscrew. Don't over-tighten the screw. Now that the hinge jamb is securely in place, you can hang the door.

6 — HANG THE DOOR. To make the final adjustments you won't need your level or your straightedge, you'll use the door to finetune the gap between the head and strike jamb, from the reveal side of the door. To re-hang the door, take the hinge pins in hand and drop them through the leaves, starting with the top hinge.

7 — FLUSH FIT. Since you confirmed earlier that the wall is flush, this step should be a breeze. Add shims at the top and bottom of the strike jamb. Adjust them as needed to make the gap (reveal) between the door and the jamb consistent along the head and down the length of the strike jamb.

8 — MORE ANCHOR SHIMS. Nail a set of shims above and below the strike plate mortise. This is the point of impact on the door, so you want the connection of the jamb to the wall rock-solid here.

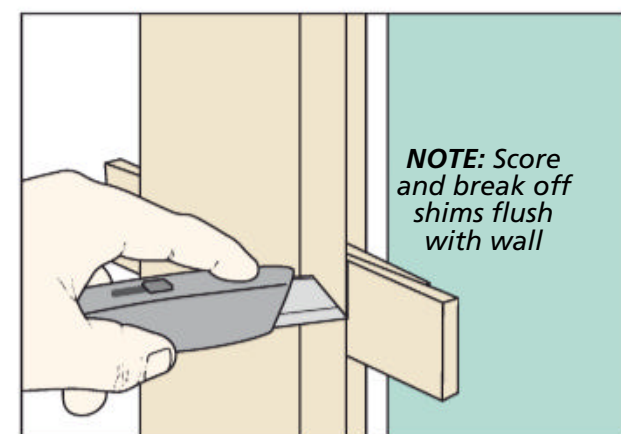
9 — MORE SUPPORT SHIMS. All that's left to do is add support shims around the door to stiffen the jamb. After setting the nails it's time to trim the shims flush. As you see at right, do this with a utility knife and a

hammer. But be careful, hitting the shims can knock the jamb loose.

ARCHITRAVE

With the door hung it is time to install the architraves. These mitred boards hide away the shims used to fit the jamb itself into the frame, plus they "frame" the door and invite the eye to seek out the door handle.

Once you start taking a serious look at doors, jambs and architraves you will notice that outside doors, kitchen and bathroom doors have architraves that hang a couple of mm above the sill, tiles or door slate. The reason for this is to stop water from wicking up the end grain of the architrave and rotting the architrave and then the jamb itself. **W**



A HELPING HAND

A clever adjustable "shim" system that we reviewed in Issue 163 is the WINBAG you see to the right. It is so simple and effective we just have to mention it again.

When you hang a door all you do is pop the deflated bags under the stiles. Next step is to step on the bulb and pump away while manoeuvring the hinges so that they line up with the hinge mortises that you have cut into the door jamb. Your eyes and hands can focus on the hinges while one foot does a clever tap dance. After the hinges are screwed home all you do is press the release valve and the bag deflates. See page 73 for sources.



Spliced Puzzle Joint



John Bullar performs a
woodwork miracle with
this intriguing joint.

How does this joint fit together? With a fully interlocked dovetail visible on each of its four sides, it certainly is a puzzle! Functionally, this strong joint splices the ends of two short square posts together into a longer post that might, for example, form the leg of an eye-catching coffee table.

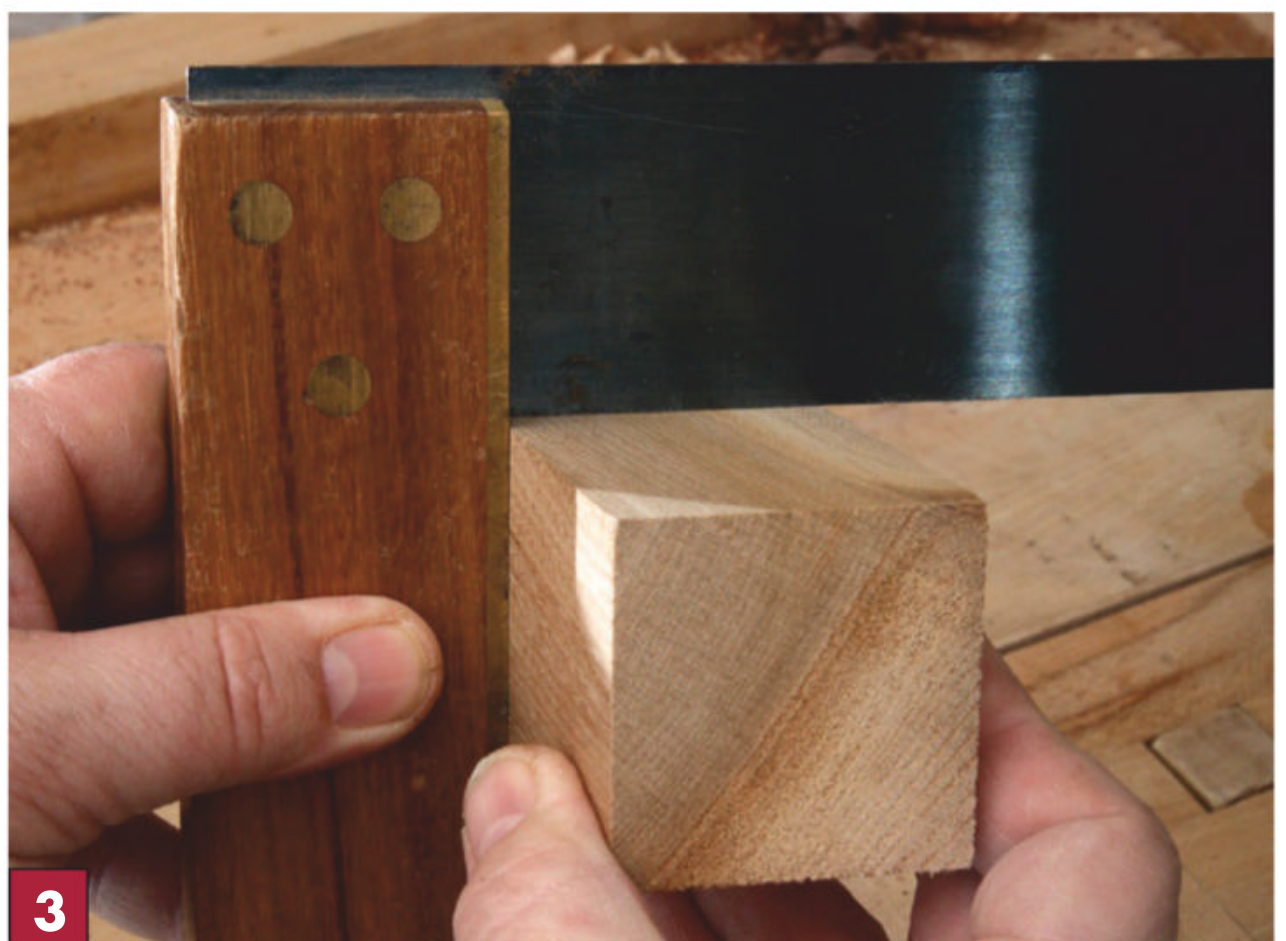
The secret to the way the joint works is in the final stages where the joined-up post is reshaped with a plane, slicing obliquely through a straightforward pair of twin dovetails. All will be revealed!

Preparation

1 Start by selecting two woods in contrasting colours, so the details of the finished joint are clearly visible. I used dark walnut and pale elm – both woods that cut crisply and form strong joints. Cut the wood into square sections, just over 40% bigger than you want the final post to end up. This allows for the final re-shaping.

2 For accurate joinery work, you need straight, flat reference surfaces. I enjoy this stage, getting the feel of the wood with a sharp, finely adjusted plane. From bitter experience, I know that good preparation at the start of the job saves a lot of sweat and tears later on!

3 As well as each surface being straight and flat, they all need to be accurately square against their neighbours. Use a try-square to check this at each end of the wood. Position a light behind to reveal any glimmer of a gap between the wood and the square.





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Marking the joint

4 Choose which piece of wood is going to carry the tails. Mark the end with a fine pencil, dividing the face in half, then in half again to locate the centres of the twin tails. On either side of each centre, mark out the width of a tail. Use a try-square to mark a shoulder line at the base of the tails.

5 If you use a bevel gauge to mark the sides of the tails as I did, set it to an angle so the width to length forms a ratio of around 1:8. This may sound a shallow angle compared to normal dovetail sides, but you will see later that the final stage of this joint slices obliquely through the tails, widening their appearance. I chose long, slim, tail dimensions to allow for this.

6 Mark the tail sides against the bevel gauge using a fine pencil. There is no need to use knife lines at this stage, because the exact shape and position of the tail sides is not critical.

Bandsaw work

7 A bandsaw is ideal for cutting joints like this, although you could use a dovetail saw or a small tenon saw. The sides of the joint must be cut square to the faces, so the bandsaw blade must be precisely at right-angles to the table. If need be, trim the level adjustment on the bandsaw table before making any cuts.

8 Saw the sides of the twin tails to follow the angled pencil lines. Remember that the kerf, or slot made by the sawblade, is wider than the pencil line. This means that the blade should run down the waste side, attempting to leave half the pencil line behind.

HANDY HINTS

You should have a spare blade specifically dedicated to fine joint work and another blade for general run-of-the-mill cutting. Taking the time to change blades will save time and heartache in the end.

9 I also cut the shoulders of the tails on the bandsaw very slowly and carefully. These are probably the most critical part of the joint – any unevenness here will convert straight into gaps in the finished joint, or else stop it closing properly.

Between the tails

10 I used a coping saw to cut a socket between the twin tails. You could use any small frame saw, a fretsaw or an electric scrollsaw if you have the use of one. Keep the saw cut a couple of millimetres clear of the shoulder line.

11 Use a bevel-edged chisel to chop the socket back towards the line. Choose the widest chisel you can find that fits the space so it practically cuts the full width. Make sure the edge is razor sharp.

12 When I am chopping sockets like this, I like to leave the last half millimetre. Finally, I chop this back in one go or pare it back with hand pressure on the chisel handle for a really clean edge.

HANDY HINTS

Tune your bandsaw an octave up the scale so that it is taut and runs true. When you have finished cutting drop the tension back for general cutting.





13

Marking the sockets

13 Take the wood with the newly cut tails and, supporting the far end on a piece of scrap, lay the tails on top of the second piece of wood. Ensure that both pieces are precisely in line, ready to mark around the tails. Use a marking knife with a sharp pointed blade to reach into the gap, and mark all around each tail.

14 Back on the bandsaw, the sides of each socket need to be very carefully cut. Use good lighting and position yourself for a clear view of the blade. While the exact shape and size of the tails didn't matter too much, the sockets must exactly match the outline of the tails so there will be no gaps in the finished joint.



14



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15 The bandsaw blade must run along the waste side of the knife line, so that the kerf formed by the blade just butts up against the line. Stop on or just before the shoulder line, so there is no risk of overshooting.

16 Because these sockets are narrow – half the width of the socket between the twin tails – I decided they did not need to be sawn out. A narrow bevel-edged chisel chopped out each socket with a few mallet blows on each side. As before, I left half a millimetre to be carefully pared back to the line.



16

HANDY HINTS

After you have cut the shoulders it is always a good idea to run a cut down the centre of the waste. This gives you some clearance for the wedged waste to move forward into, otherwise you may find that the waste wedge traps the chisel and may even split off the short-grained tops of the tails.

You can use the blade itself to nibble away all the waste. Just make sure you leave at least 1mm of waste at the bottom of the cut so that you can shave it flush with a chisel.



Fitting the joint

17 The moment of truth comes when you first try to engage the twin tails in the twin sockets. Don't be worried if they will not slide straight in – in fact if they do, they are probably too loose. It is quite common to need to trim a joint for a good, firm fit.

18 Only partially engage the joint for a trial fit – pushing it too far may cause it to break as you try to pull it apart. Once you are satisfied that the joint is going to fit, glue it up and use a clamp or a vice to finally pull it together.

Re-shaping the post

19 The trick now is to turn this twin dovetail into a puzzle joint. The joined-up post needs to be planed at 45°, removing a large number of shavings from each corner. Keep going until you convert each of the corners into a new face. At the same time, each of the old faces will be reduced in width until it forms a new corner.

20 The job is finished when each new face of the joined-up post is equal in width, and each new corner is straight and even. Instead of showing twin dovetails, the newly angled surfaces now display a single tail on each face. You can challenge anyone to work out how this strong spliced joint fits together! **W**





Casual Coffee Table

The laid-back vibe of this table invites you to put your feet up and relax — or set up for the weekly game night.

Tables invite gathering. A large dining table draws family and friends to celebrate holidays and special events. A coffee table on the other hand, tones down the rituals for laid back gatherings whether coffee-based or another beverage of your choosing.

I've noticed a recent trend that super sizes the coffee table into continent-sized altars of display. This table instead relishes small spaces and everyday gatherings. The splayed legs and aprons visible from the front add visual and woodworking interest.

Down below, there's a drawer to hold entertaining essentials, remotes or just a place to clear the deck when company arrives. We finished the base with a two-tone distressed paint job. Think

of it as a subtle permission slip to skip the coasters or put your feet up. Painting the base also allows you to use lower cost materials without apology.

The top of any table is the high-impact and high-traffic show-piece. In this case, it's made from thick, solid cherry. Breadboard ends nod in the direction of a casual, country style.

Even the details reinforce feeling at ease. There are no ornate mouldings or profiles. Edges are softened just enough to feel comfortable — and to help add "authentic wear" to the paint.

The Designer Series projects aim to let you create good-looking, solidly built furniture using essential skills with a modest tool kit. It's time to start building.



▲ Angled legs and a distressed paint scheme dial back the formality of this coffee table design. A drawer adds welcome storage and the crowning, naturally finished breadboard top (opposite page photo) adds contrast.



Angles & tapered LEGS

Since the angled legs form such a prominent characteristic of this table, we'll start there. I want to point out that not only are the legs angled in orientation, but also tapered from top to bottom. This is shown in the left margin drawing. This lightens the look of the legs and enhances the angled effect.

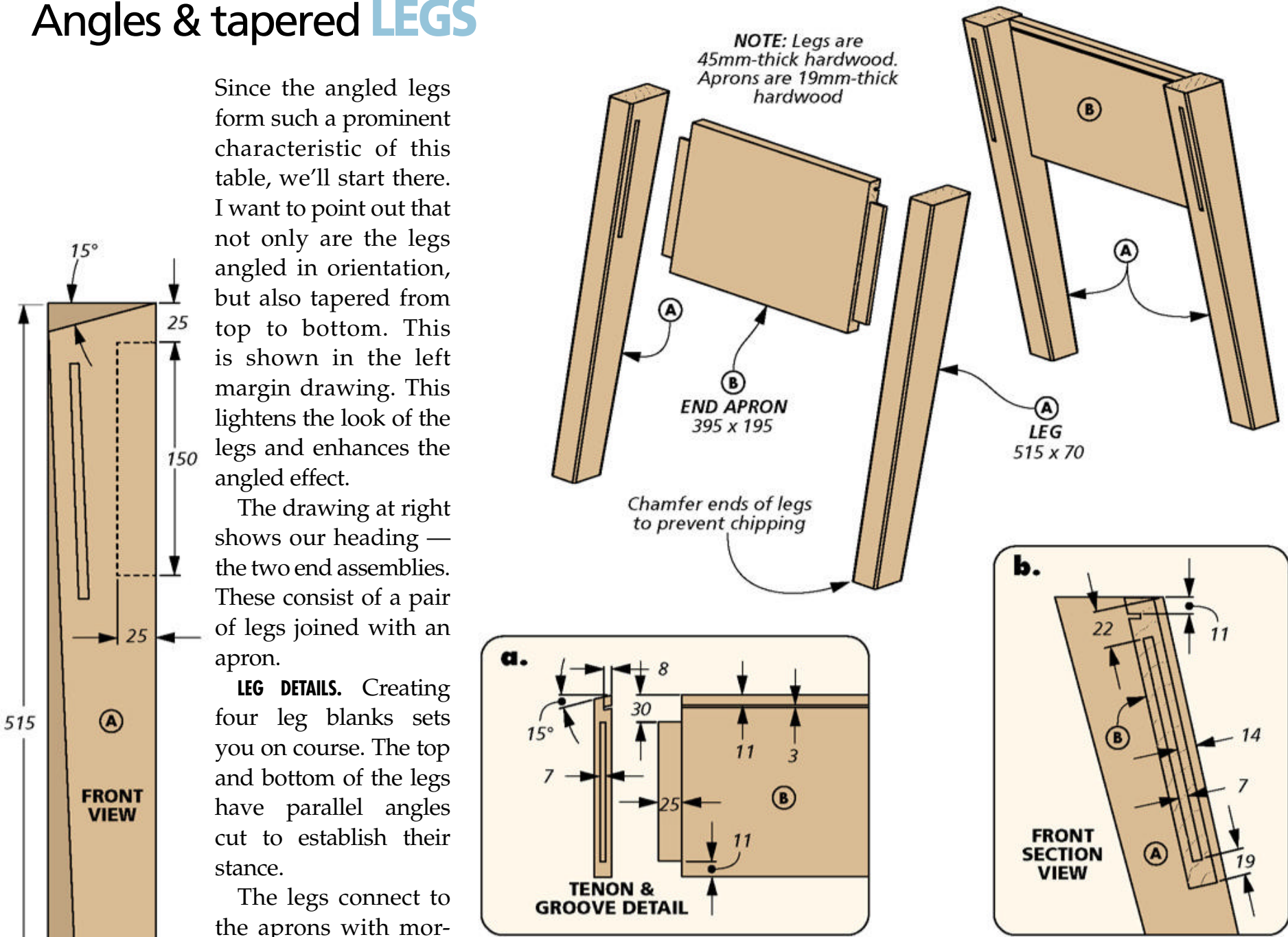
The drawing at right shows our heading — the two end assemblies. These consist of a pair of legs joined with an apron.

LEG DETAILS. Creating four leg blanks sets you on course. The top and bottom of the legs have parallel angles cut to establish their stance.

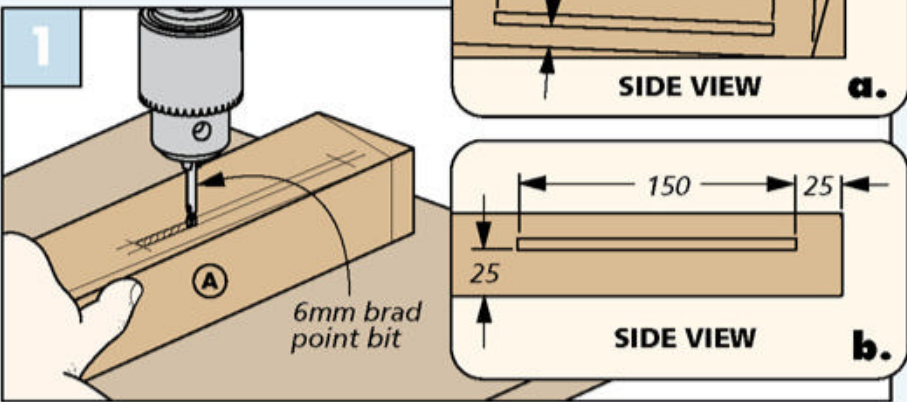
The legs connect to the aprons with mortise and tenon joints. While the sides are still parallel and square, it's a good idea to form the mortise on the inside face of the leg. These are the ones that hold the two end aprons.

Figure 1 below shows a tried-and-true technique that employs a drill press to remove most of the material. You then clean up the edges and ends with a pair of chisels at the workbench. A wide chisel straightens the sides of the mortise, while

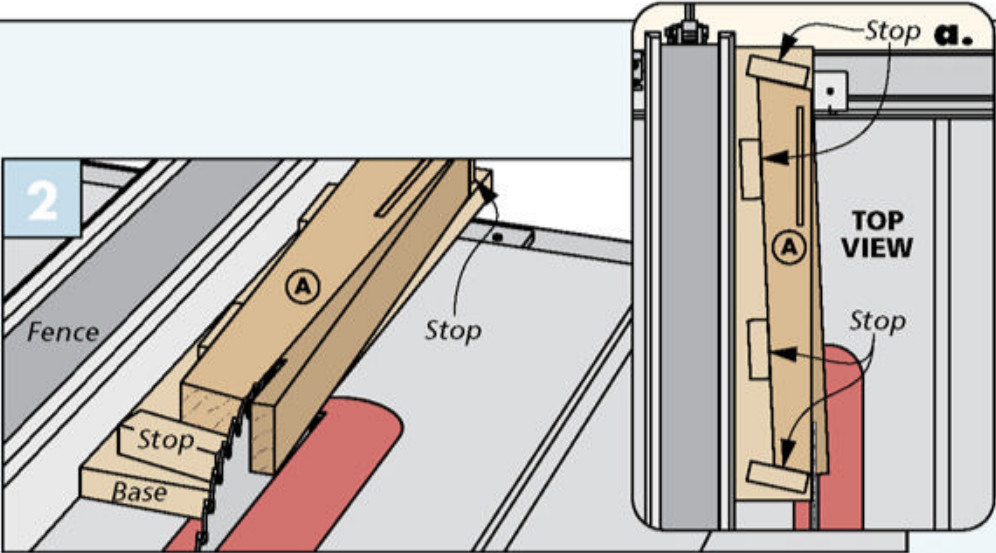
a narrow chisel chops the end square. **TAPER THE LEGS.** Before forming the remaining mortises, you need to taper the outside edge of the legs. Figure 2 below shows how to cut the tapers with a quick-to-make taper jig.



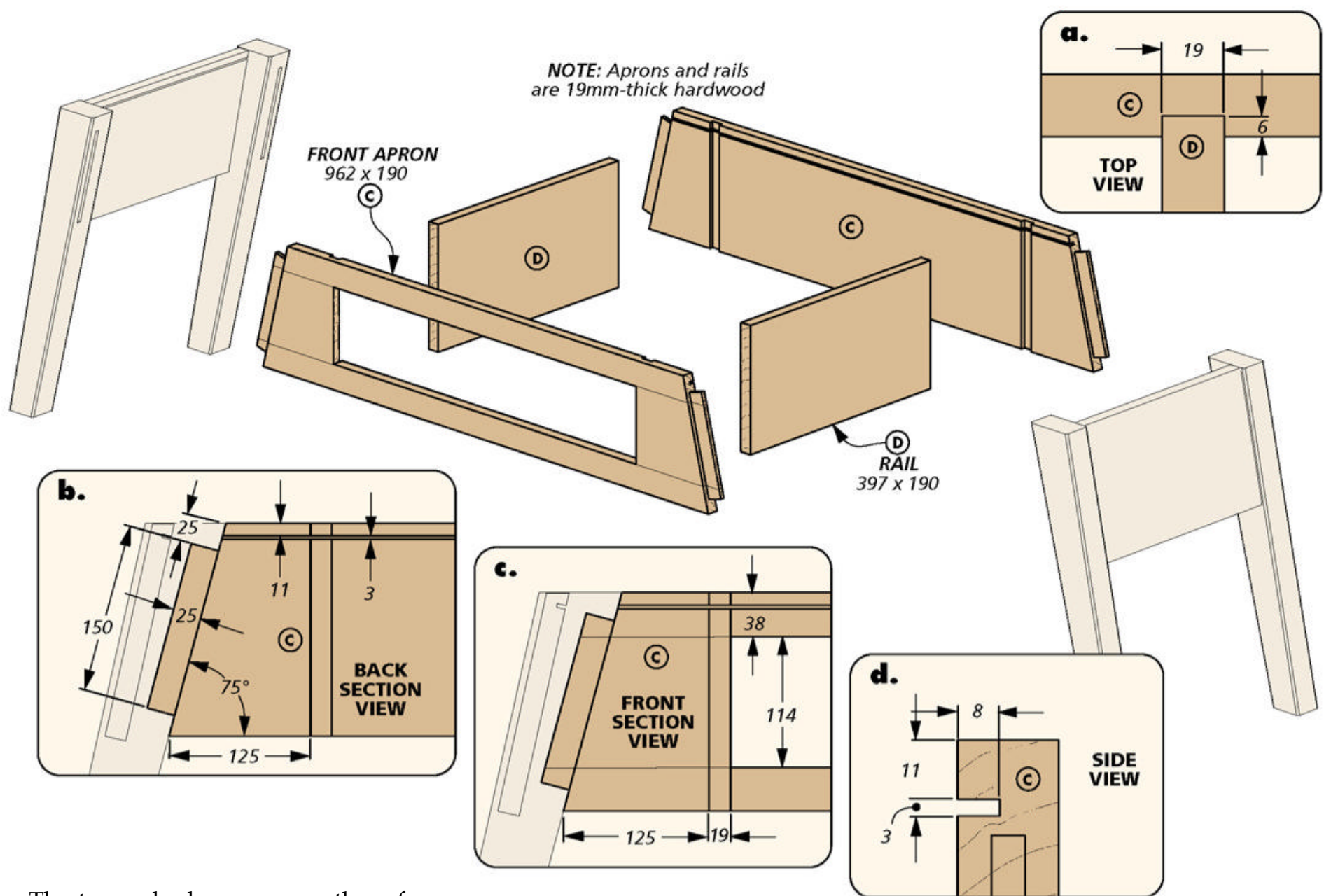
LEG WORK



Making a Mortise. Drill a long line of overlapping holes with a brad point bit. Straighten the edges with a wide chisel. It isn't necessary, but you can square up the ends as well.



Taper Jig. The taper jig consists of a plywood base with a handful of stops that position each leg in the same place for consistent tapers. The sled runs against the rip fence.



The tapered edge serves as the reference surface for mortises with a consistent depth.

END APRONS. The two end aprons only require a tenon cut on each end to fit the respective mortises, as in detail 'a.' The upper and lower edges are bevel ripped to match the lean of the legs. After cutting an angled groove for tabletop fasteners (detail 'b'), you can assemble the ends.

CENTRE ASSEMBLY

The bridge between the ends makes up the front and back of the table. With it, you'll also create a pocket for the drawer, as shown in the drawing above.

FRONT APRON. The front and rear aprons are identical in finished size. But making them is a different story. The rear apron is simply cut to size with angled ends.

The box below shows how to create the drawer opening in the front apron with four cuts at the table saw.

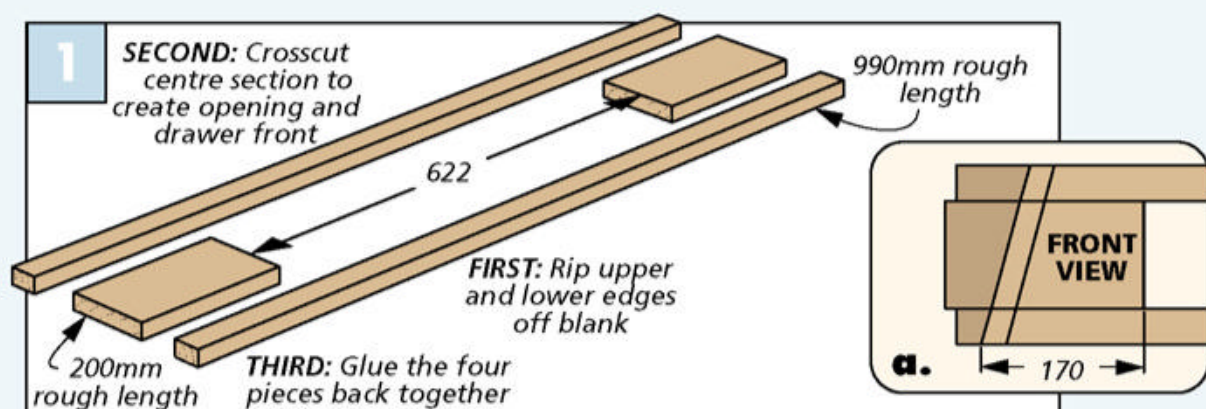
This arrangement works particularly well if you choose to go with a clear finish on the base. The middle section is sized for the drawer front so you have continuous grain flowing across the entire piece.

TRENCHES & TENONS. Joinery is up next. The inner faces of the aprons have trenches to house the drawer rails (details 'a' and 'c'). Then you can cut tenons on the angled ends.

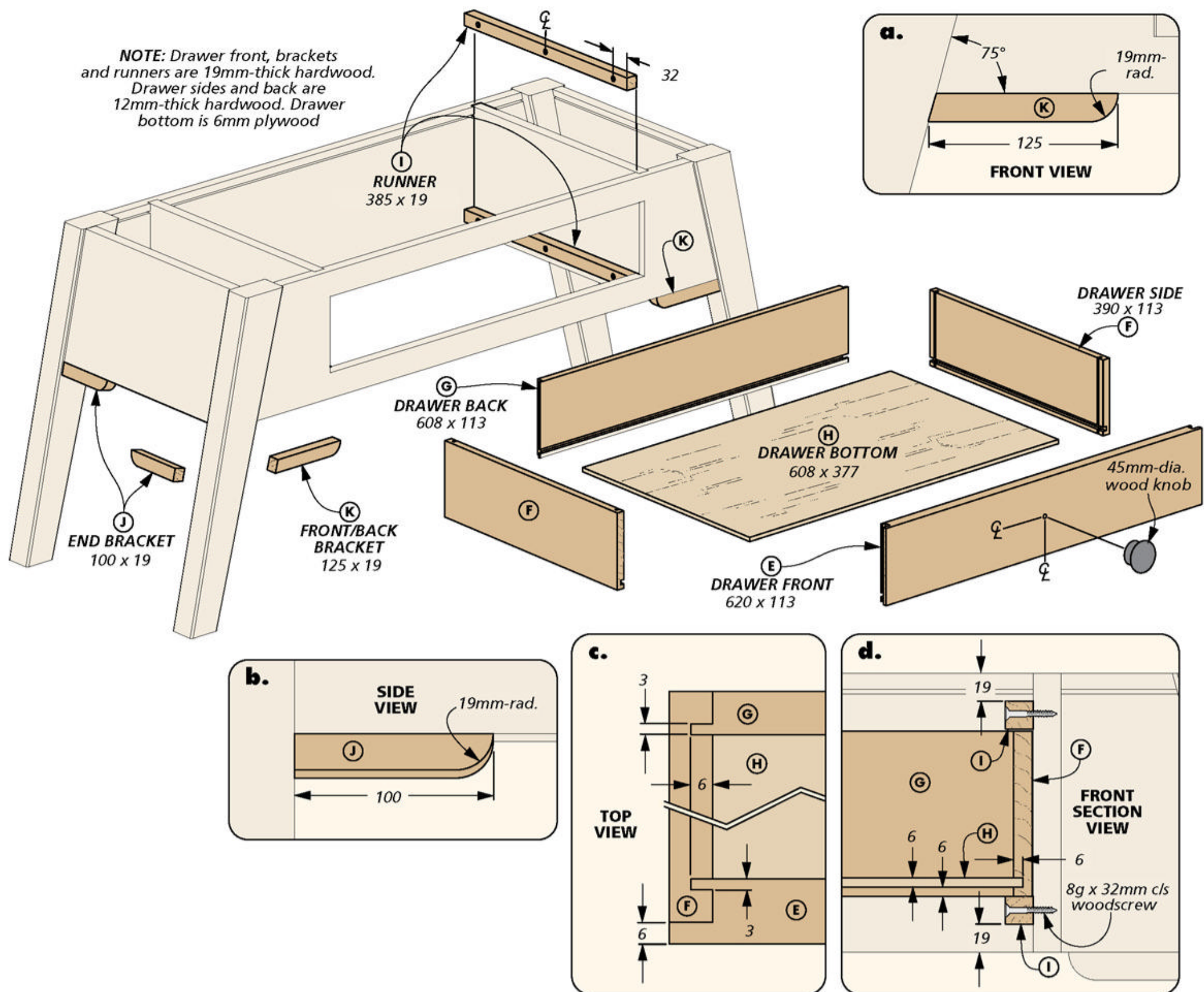
I used a dado blade in the table saw. Support the piece with the mitre gauge rotated to match the angle on the end and with the rip fence set for an end stop. In order to form the end shoulders, I find that a hand saw and a chisel work better than trying to do this at the table saw.

The groove for the tabletop fasteners is easy to overlook in your haste to glue up the base, as in detail 'd.' I glued the rails to the front and rear aprons before adding the end assemblies. Your aim is a square assembly with the parts flush at the top.

FOUR-PIECE OPENING



Cut & Glue. Two long rip cuts define the height of the drawer opening. Crosscut the centre section to separate the drawer front (as shown on the next page). Glue the remaining pieces back together.



A Handy DRAWER

With the structure of the table formed, you can turn towards the work of fitting it out. We'll make a drawer, add some decorative flourishes, and cap it off with the top.

DRAWER FIRST. Remember the middle piece you cut out when making the front apron? It's time to dig it out to use as the drawer front. If necessary, trim it up a bit for even reveals on all four sides.

The drawer parts are joined with a locking rebate joint, as shown in detail 'c.' This is formed in three steps. First, cut a slot across each end of the drawer front. The depth of the slot matches the thickness of the drawer sides. Next, the inner tongue

of the slot gets trimmed back to accommodate the side.

Finally, the drawer sides have a trench cut at each end to interlock with the tongue on the front, as in detail 'c.' The drawer back has a tongue cut at each end to fit into the trenches in the sides.

You can cut a groove in all the parts to accept the drawer bottom (detail 'd'). Then assemble the drawer. A round wood knob suits the tone of this piece.

INSTALLING THE DRAWER. The drawer guides that make up part of the table base keep the drawer running straight and true. What's needed is some support from

above and below. A set of runners takes on that role, as in detail 'd.' The runners are screwed to the rails to centre the drawer in the opening top to bottom. Depending on drawer sizing, you may need to add a stop to the rear apron so the drawer is flush at the front.

KEEPING BRACKETS. I felt the table was feeling too square. To soften the look, I added a rounded bracket to the transition between the leg and apron. These are shown in details 'a' and 'b.' Shape the brackets on the end of an extra-long blank for safer handling. Then lop each one to length and glue it on.

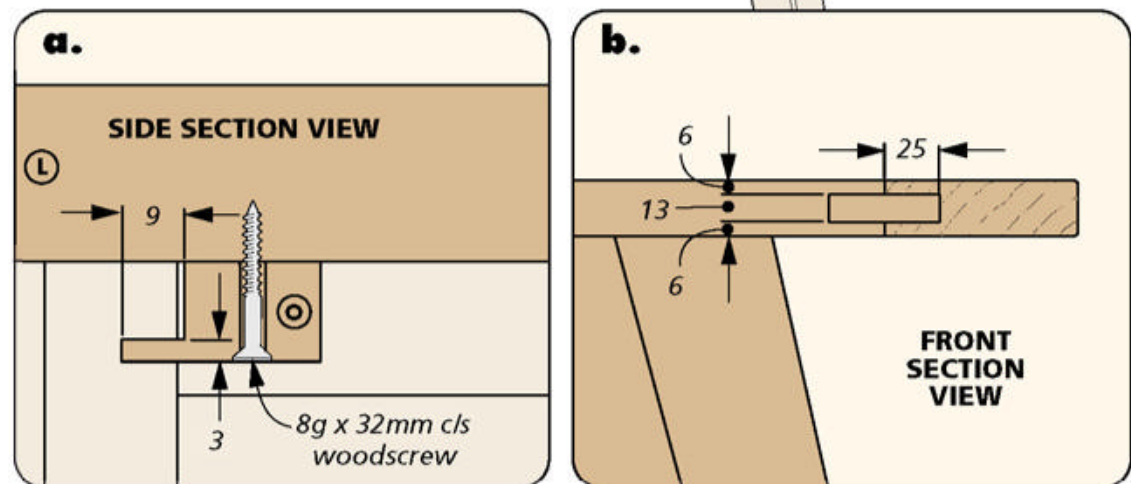
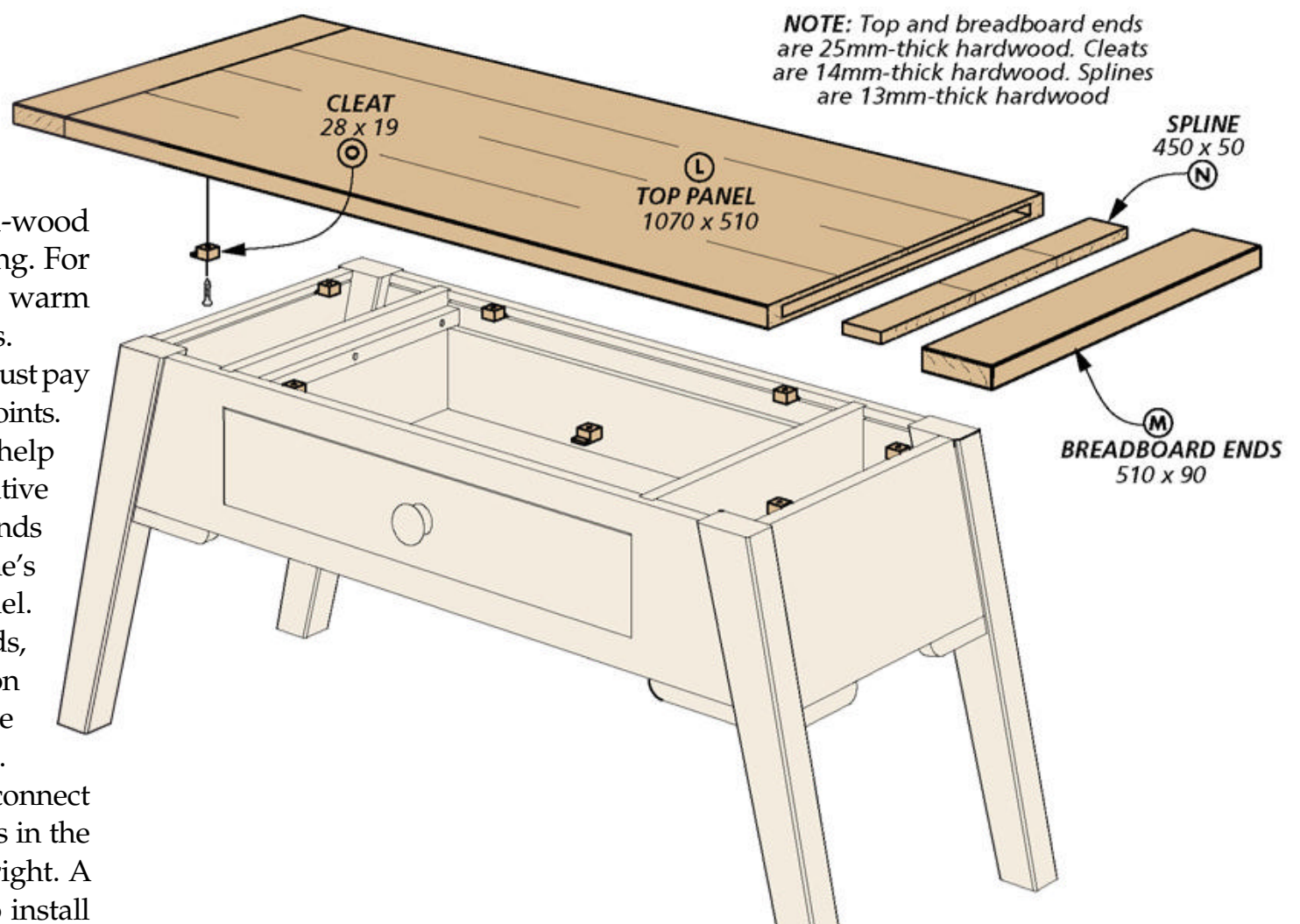
BREADBOARD TOP

The crown for this table is a solid-wood top, as shown in the right drawing. For this version, I used cherry. The warm hue plays well with most settings.

Gluing a panel isn't complicated, just pay attention to the grain for seamless joints. Breadboard ends are added to help keep the panel flat and add a decorative touch. Grooves cut in the top and ends accept a spline. Note that the spline's grain direction matches the panel. When gluing on the breadboard ends, only apply glue to the middle section to allow the panel to accommodate seasonal expansion and contraction.

TABLETOP CLEATS. Hardwood cleats connect the top to the base. A tongue slides in the apron grooves, as in detail 'a' at right. A slip fit allows the top to move. To install the cleats, flip the top upside down on your bench. Centre the base on the top. Fit the cleats in the grooves and install screws to secure the top (detail 'b').

Sources on page 73 has the details on the distressed, painted finish I used. You can't help but relax once you place this table in the house. Grab a magazine (*Australian Woodsmith?*) and relax. [W](#)



Materials, Supplies & Cutting Diagram

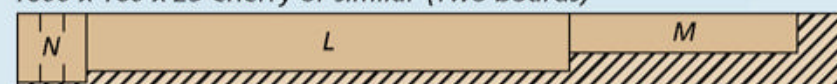
A	Legs (4)	515 x 70 x 45
B	End Aprons (2)	395 x 195 x 19
C	Front/Back Aprons (2)	962 x 190 x 19
D	Rails (2)	397 x 190 x 19
E	Drawer Front (1)	620 x 113 x 19
F	Drawer Sides (2)	390 x 113 x 12
G	Drawer Back (1)	608 x 113 x 12
H	Drawer Bottom (1)	608 x 377 x 6ply
I	Runners (4)	385 x 19 x 19
J	End Brackets (4)	100 x 19 x 19
K	Front/Back Brackets (4)	125 x 19 x 19
L	Top Panel (1)	1070 x 510 x 25
M	Breadboard Ends (2)	510 x 90 x 25
N	Splines (2)	450 x 50 x 13
O	Cleats (8)	28 x 19 x 14

- (14) 8g x 32mm c/s Woodscrews
- (1) 45mm-dia. Wood Knob

2400 x 140 x 25 Cherry or similar



1800 x 160 x 25 Cherry or similar (Two boards)

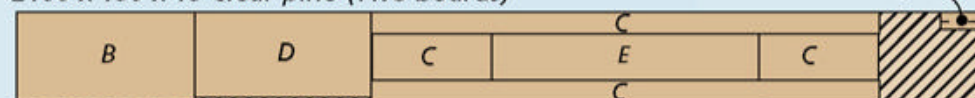


1500 x 140 x 19 Clear pine



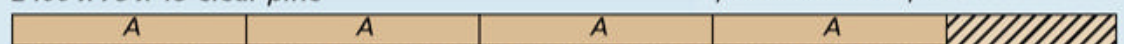
ALSO NEEDED: 600 x 600 x 6mm plywood.

2100 x 190 x 19 Clear pine (Two boards)



NOTE: Front apron cut into five apron left in one piece

2400 x 75 x 45 Clear pine





Serpentine Chest

This flowing chest of drawers, a modern take on a traditional piece, catches the eye without showing off.

The serpentine style has a nearly four-century-old history, dating back to one of the most immoderate periods of French design. A traditional serpentine chest often featured ornate trim and gaudy carvings, and would look far more at home in the Palace of Versailles than a 21st-century household. The form certainly gained modesty as the years passed and it spread across the world, but many of the examples you'll find today would still stick out like a sore (though elegant) thumb in most modern homes.

Our designer, Chris Fitch, wanted to make a serpentine chest that would fit with a variety of styles, from Arts and Crafts to Modern. In doing so he trimmed the excesses, focused on flow, made it more efficient, cleaner and sleeker, until he had the piece pictured here. While the figured drawer fronts and sweeping, splayed legs catch the eye, they won't overshadow the other furniture in your home.

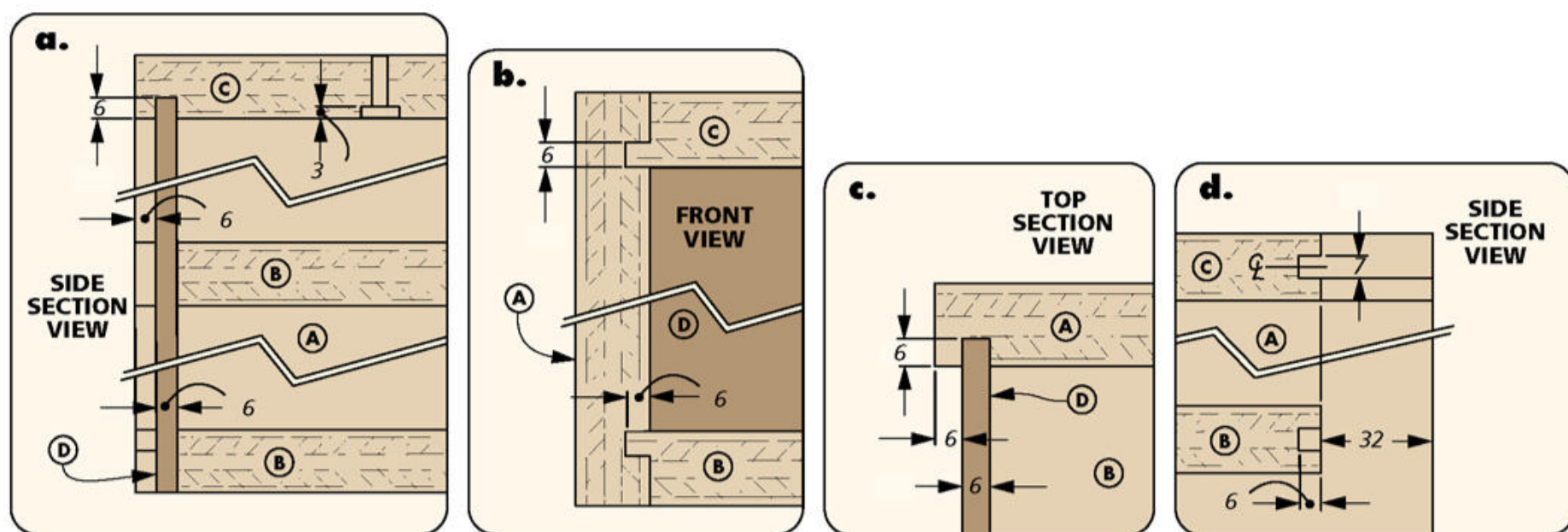
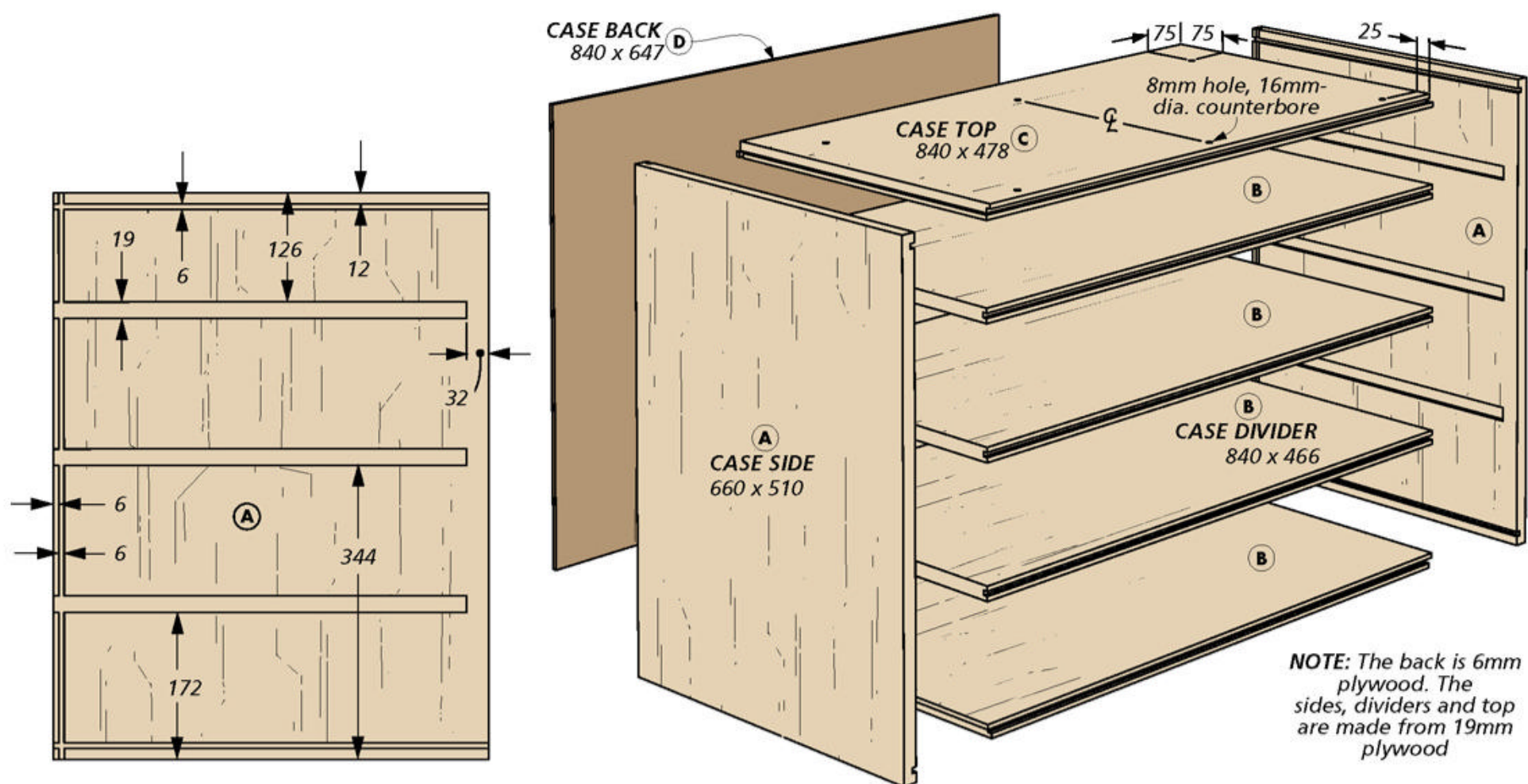
This project provides a meaty, though not insurmountable, challenge. For those of you who (like myself) appreciate some time at the bandsaw, you'll find this piece a particular joy, as all those curves are bandsawn to shape. Between the machine-cut, half-blind dovetails and a number of roundovers, you'll also get a hearty helping of router work in. Lastly, you'll find the drawer fronts offer a rare opportunity to see how the figure of the grain changes with the depth. Without further ado, I'd suggest turning the page to get to the doing.



- ▲ Angled legs and a rounded, curving top offer a sleek look, while the drawer pulls draw focus to the fascinating, figured grain revealed by the varying depths of the serpentine fronts.



- ▲ Sturdy half-blind dovetails mask themselves when the drawers are closed, blending into the sleek curves, yet they provide a beautiful contrast between the cherry fronts and pine sides when opened.



Kicking it off with the CASE

The first step in building the chest is to create the main case everything else wraps around. The case itself is relatively simple: sides, dividers and a top all made from plywood and joined together by a series of tongues, grooves and trenches. A plywood back completes the case, but it won't be attached until after the drawers are installed.

You'll first need to size some panels, so cut the sides, dividers and top. Size the back as well, but set it aside for now. We'll get back to it later.

STOPPED TRENCHES. To hold the middle dividers in place, several stopped trenches will need to be cut in the sides. As shown in Figure 1 on the next page, I did this using a plunge router and a simple jig made from two pieces of Masonite. The Masonite guides the router base while you rout to the end of the trench. After routing, use a chisel to square the stopped end.

THROUGH TRENCHES. While that finishes the stopped trenches, the trenches don't stop there. The sides need narrow trenches to

hold both the case top and the bottom divider. Head to the table saw to cut through trenches on the top and bottom of the sides (Figure 2 on the next page). These trenches need to be narrower, as the case top and bottom divider are held in place by tongues.

TONGUES. As you can see in detail 'b' above, the case top and the bottom divider sit flush with the ends of the sides. Tongues are used to accomplish this. Staying at the table saw, use a dado blade to cut rebates in the top and

CUTTING THE CASE JOINERY

bottom pieces, creating the tongues to match the through trenches.

GROOVES. While the back will be attached later in the process, this is a good time to cut the grooves that hold it in place. Both the case sides and the case top have these grooves. As with the through trenches previously, I cut these grooves on the table saw (Figure 3).

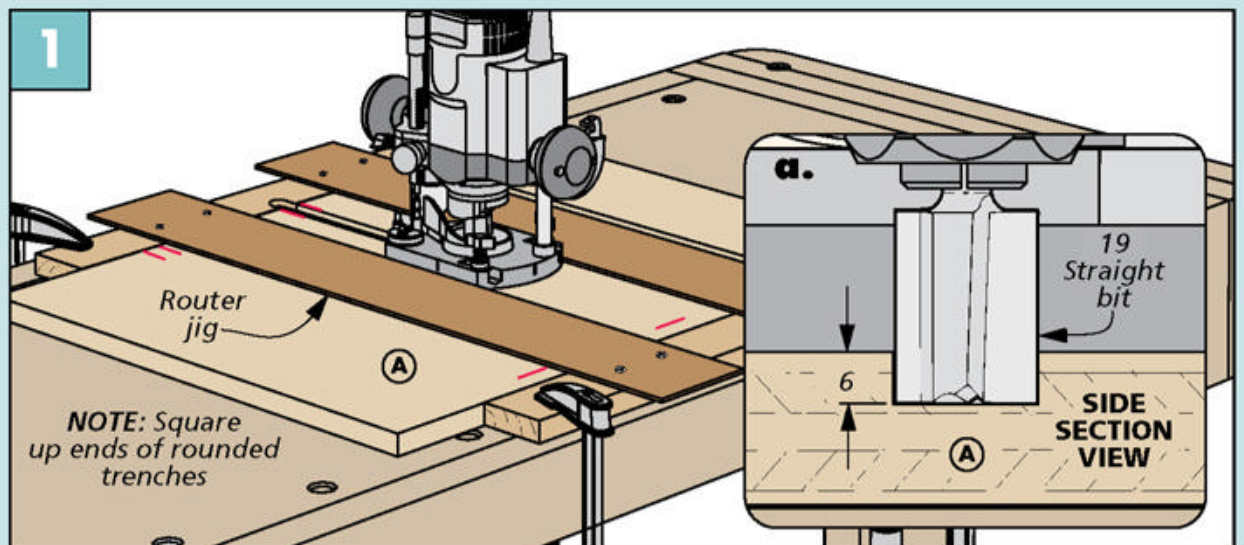
SERPENTINE SLOTS. To fit the serpentine edges for which the chest takes its name, grooves need to be cut in the front of the dividers and the top. Tongues on the serpentine edges will fit in these grooves, but more on that later. To avoid cutting these panels on end, I opted to use a slot cutting bit on the router table, like you see in Figure 4 at right.

PILOT HOLES. Later on, another top will be seated on the case with washer head screws. Now is a good time to drill the pilot holes and counterbores for those screws.

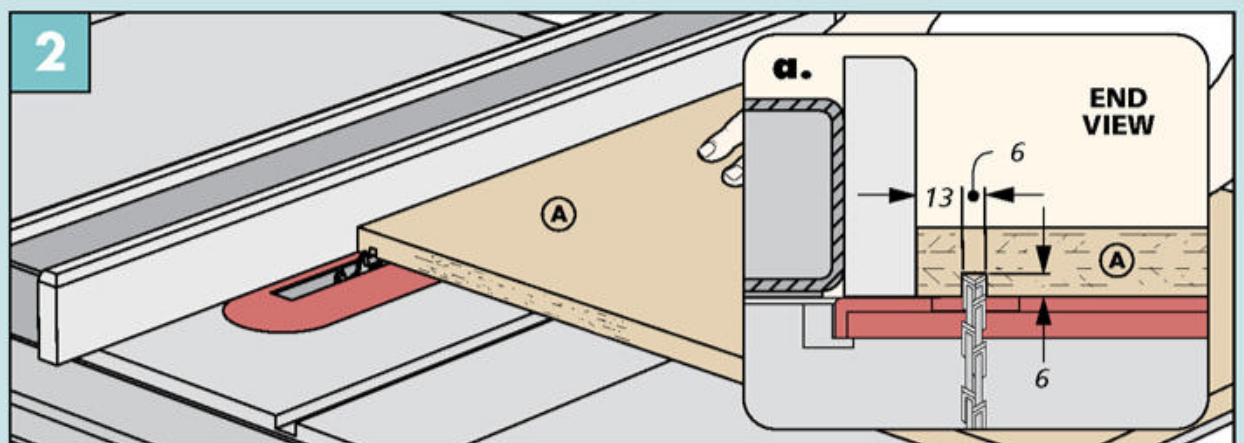
ASSEMBLE THE CASE. With the joinery on the case concluded, it's time to assemble it. Glue up all case pieces, however, as I mentioned before, leave the back off for now. This will make it easier to clamp the serpentine edges in place, and fit the drawers with the case itself after they're made.

Begin the glue-up by laying one side of the case flat on the workbench (grooves and trenches facing up). Fit the dividers and case top in, then place the second side over them. The case won't have much stability while making sure that everything stays square, so I prefer a glue with a long open time.

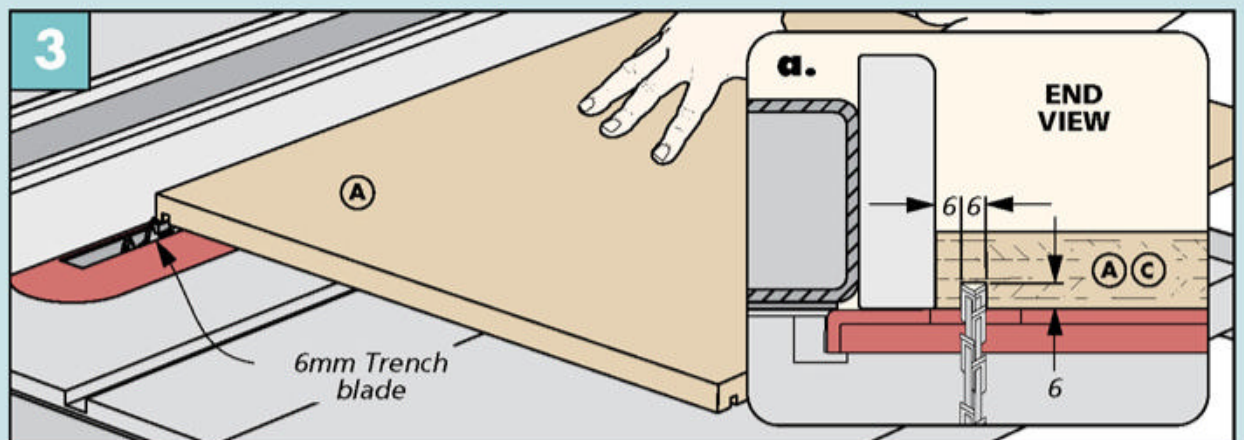
Using a couple of curved cauls is helpful here too, as the broad sides keep most clamps from pressing on the middle. A caul will distribute the force across the whole side, keeping the sides flat and ensuring all dividers get equal clamping pressure.



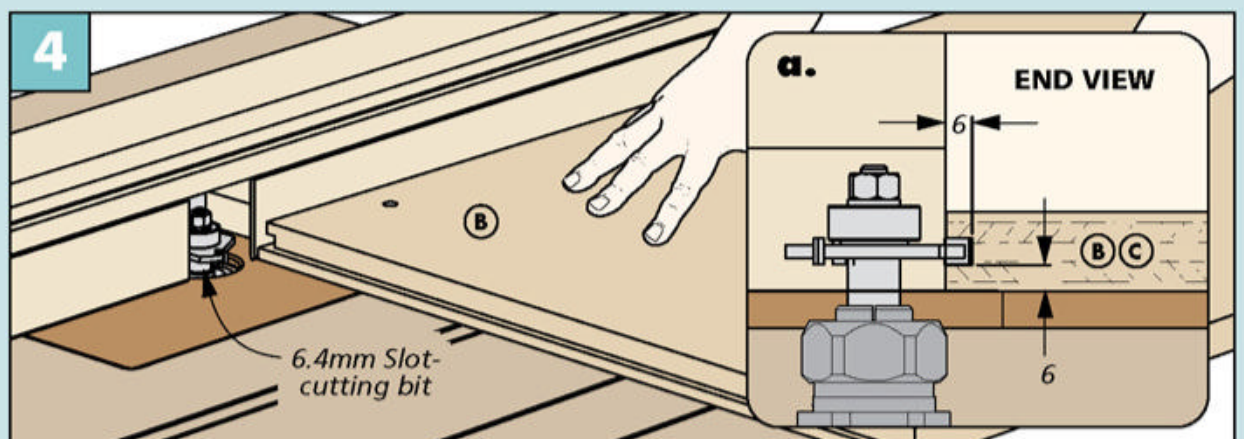
Stopped Trenches. Use a router and simple jig to cut stopped trenches in the side pieces, which will accept the middle dividers. Use a chisel to square up the ends.



Through Trenches. At the table saw, use a trench blade to cut the trenches in the case sides. These will hold the tongues of the case top and bottom divider.



Back Grooves. To accept the MDF back of the case, use the table saw to cut grooves in the case sides and case top, as you did with the through trenches.



Slot Cutting. The serpentine edges will fit onto the front of the dividers and top with tongue and groove joints. Use a slot-cutting bit to cut these grooves.

Long and Short LEGS

With the case constructed, it's time to give the chest a few legs to stand on. The front legs consist of a three-piece assembly (shown at right), while the rear legs are smaller and screwed on with a set of brackets.

FRONT LEG ASSEMBLY. When sizing the front leg pieces, leave the leg body as an extra-wide blank and bevel rip the body and cleat. The tongue and body get glued up first (Figure 1). Be sure the front leg aligns with the case side, as in detail 'c.' When clamping the assembly, I used a caul block that I bevelled at 30°.

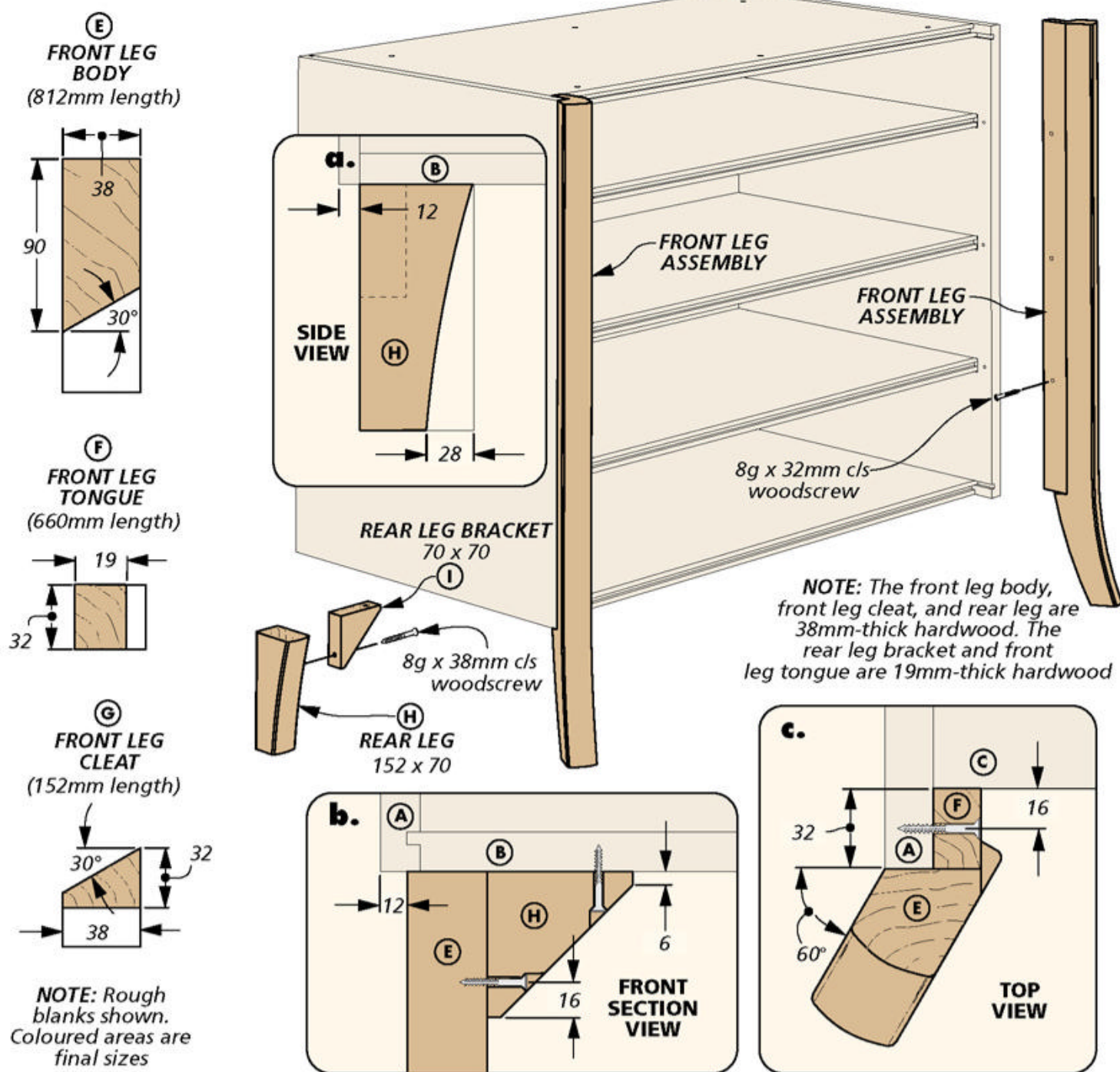
Once dry, use a wedge to position the leg and body flush (Figure 2). To reach the final width, tilt the blade back to 45° and rip. Lastly, glue the cleat on below the tongue, as shown in Figure 3.

SHAPING THE LEGS. To help in shaping the legs, we've provided patterns at australianwoodsmith.com.au. After printing the patterns and attaching them to the front

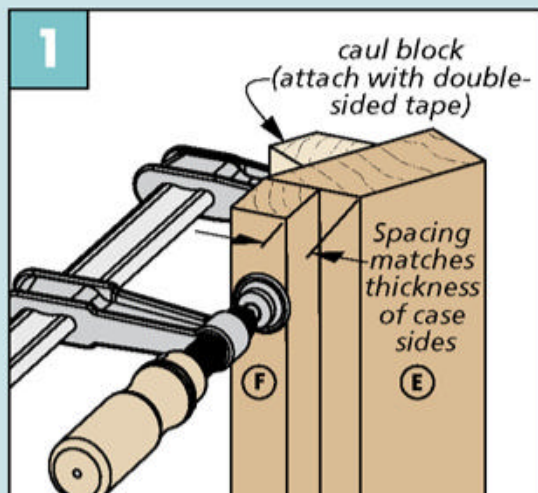
legs (Figure 3), take a trip to the bandsaw to cut their profiles as shown in Figure 4.

RADIUS. To create the radius you see in detail 'c' above, I used a roundover bit (see Sources on page 73). After setting the

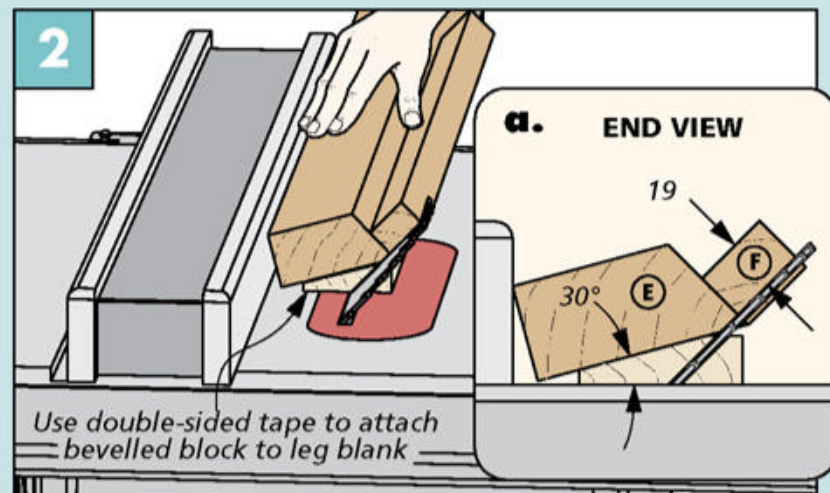
bit in my router table, I raised the cutter just below halfway up the thickness of the piece (Figure 5a). Then I made one pass on either side to round out each half (Figure 5b).



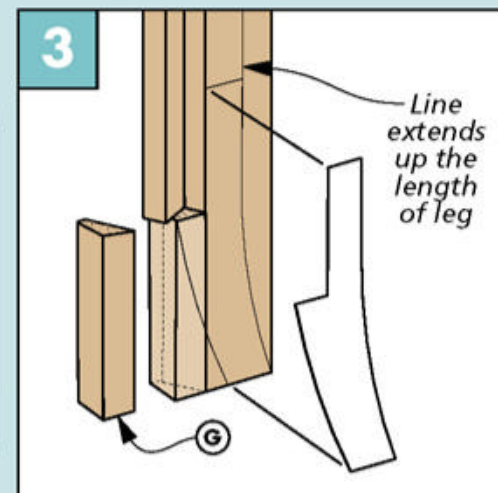
THE LONG AND SHORT OF IT



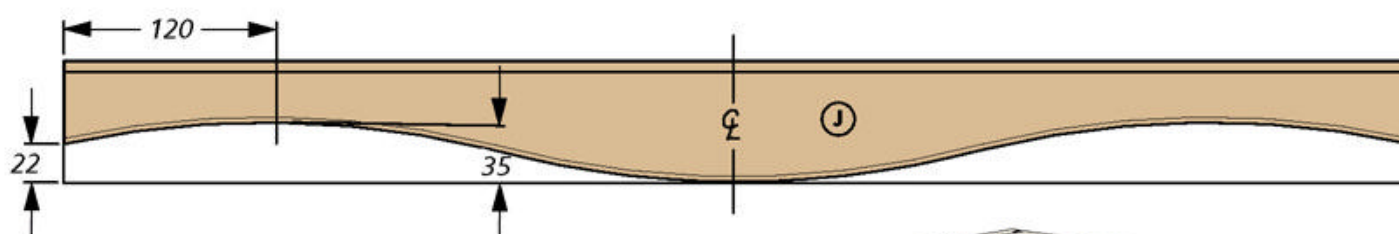
Glue-up. Glue the front leg body flush to the leg tongue.



Rip the Excess. Tilt the blade to 45°, then use a 30° wedge to rip the excess from the front leg glue-up.



Pattern. Glue the cleat flush to the inner leg. Attach the pattern.



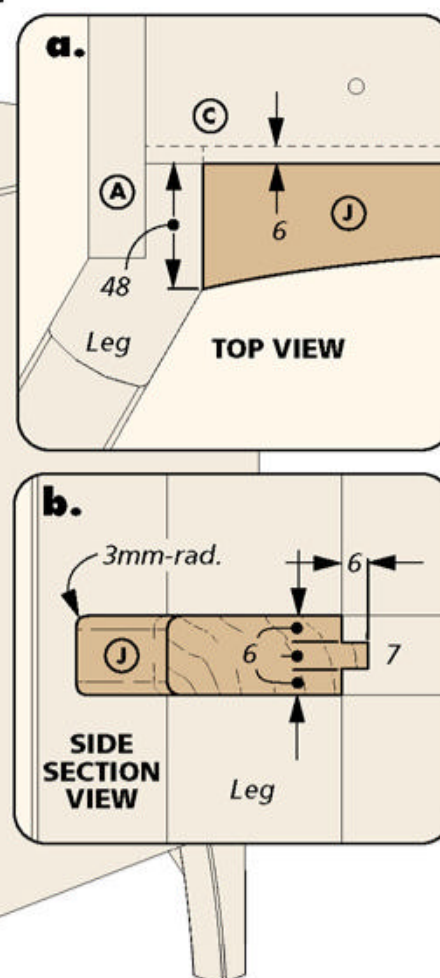
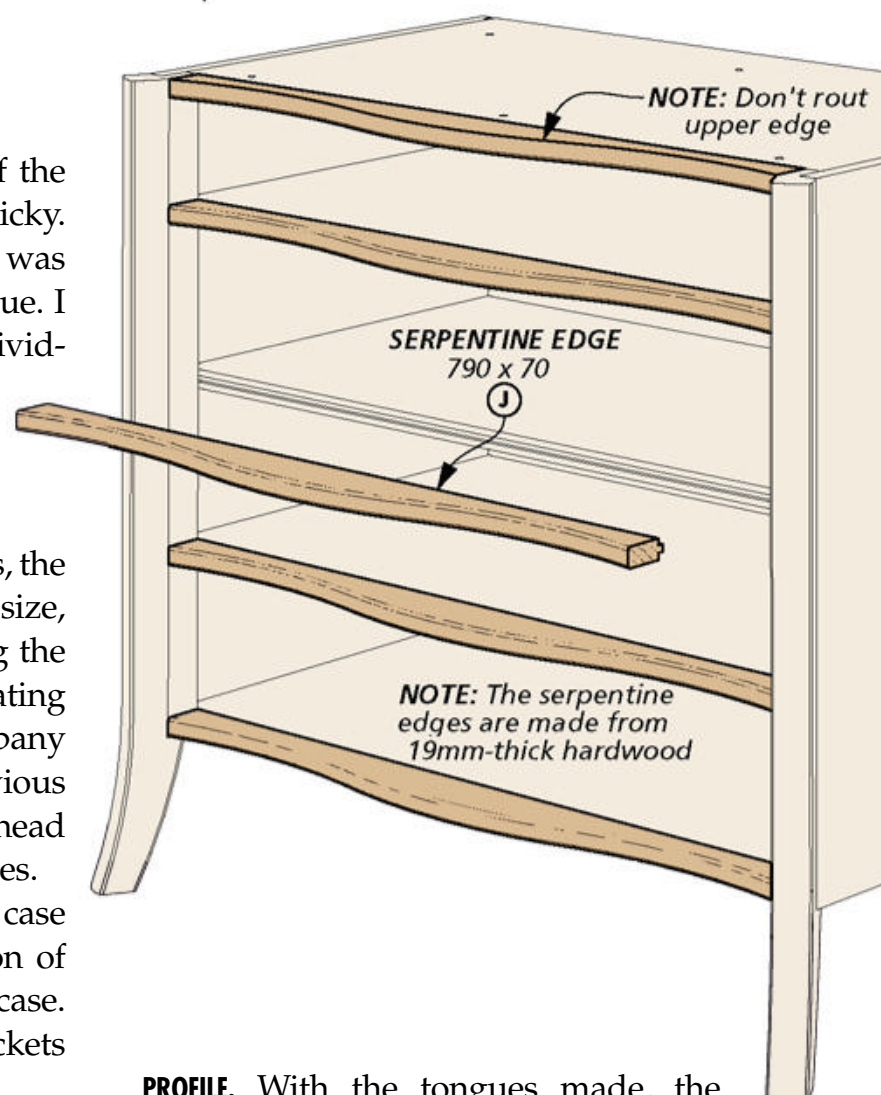
ATTACHING THE FRONT LEGS. The splay of the front legs makes the glue-up here tricky. To make sure enough pressure was applied, I used screws along with glue. I located the screws in line with the dividers (main illustration, previous page). This way the edges hide the screws when the drawers are removed.

REAR LEGS. After making the front legs, the rear legs are a cakewalk. Once cut to size, repeat Figures 3 through 5, attaching the patterns, cutting the profile and creating the radius. A pair of brackets accompany the rear legs (detail 'b' on the previous page). When the brackets are sized, head over to the table saw to cut their mitres.

ATTACHING THE REAR LEGS. Flip the case upside-down, then mark the location of the rear feet on the bottom of the case. Glue the feet to the bottom with brackets glued and screwed in alongside.

SERPENTINE EDGES

The last step before moving onto the drawers is to add some of the titular serpentine aesthetic. Namely, the edging on the top and dividers. After sizing the edge pieces, head to the table saw to cut rebates on the back edge of these pieces, forming a tongue like you see in detail 'b.'



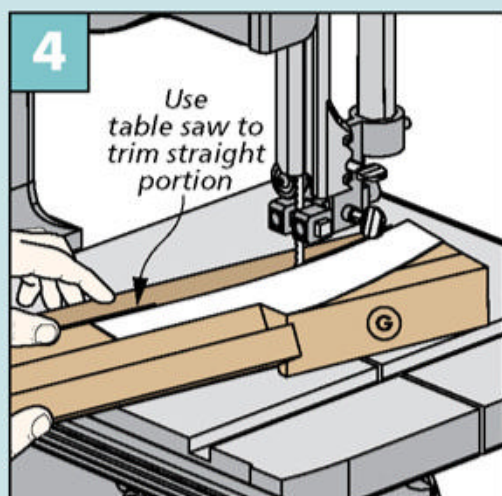
PROFILE. With the tongues made, the edges are ready for shaping. Like the legs, we've included patterns to help here. Before attaching the patterns, fit the edges on the dividers. As in detail 'a,' the beginning of the curve on the edge should align with the corner of the front leg.

I cut the profile of the pattern on the bandsaw as well. I then headed to the router table to round over the front edges

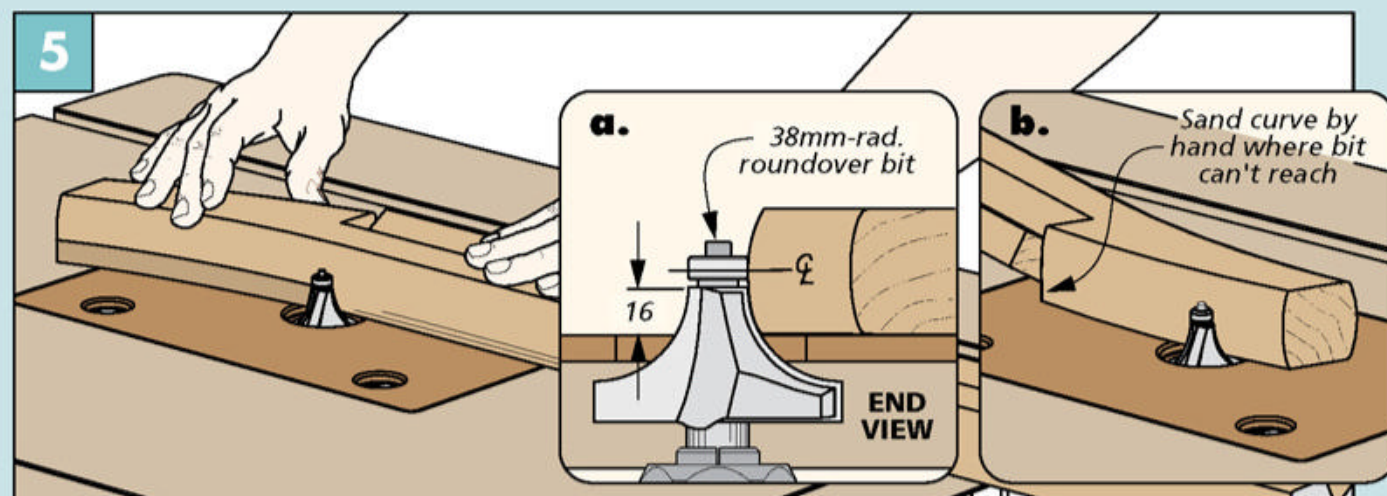
Woodsmith
GO On-Line Extras

For full-size leg curve and serpentine patterns, visit our website at australianwoodsmith.com.au

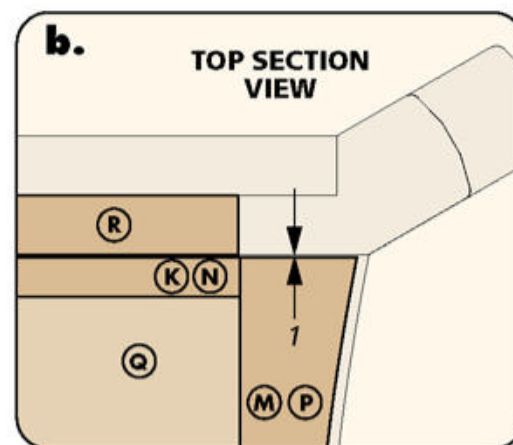
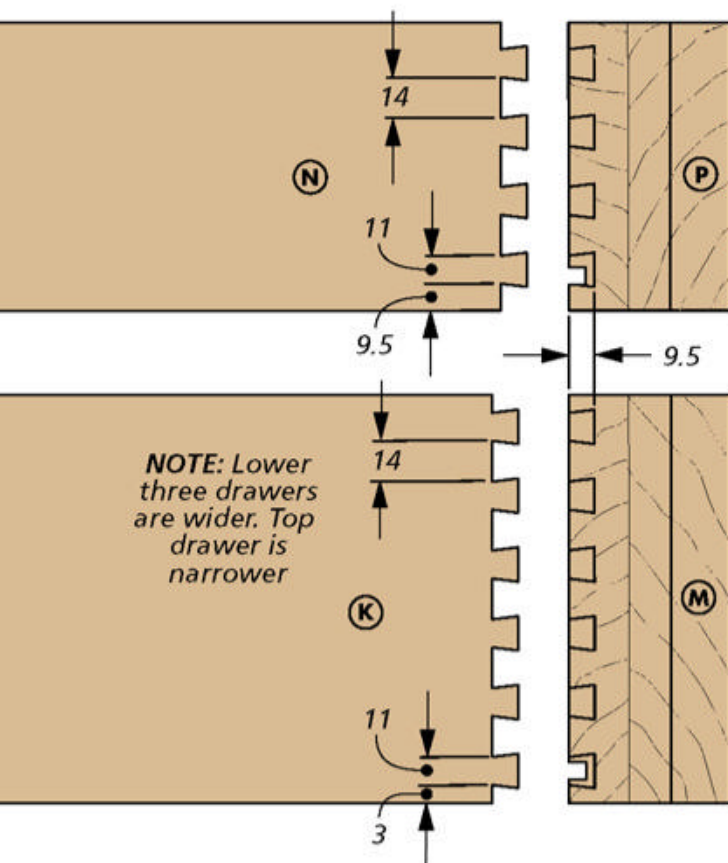
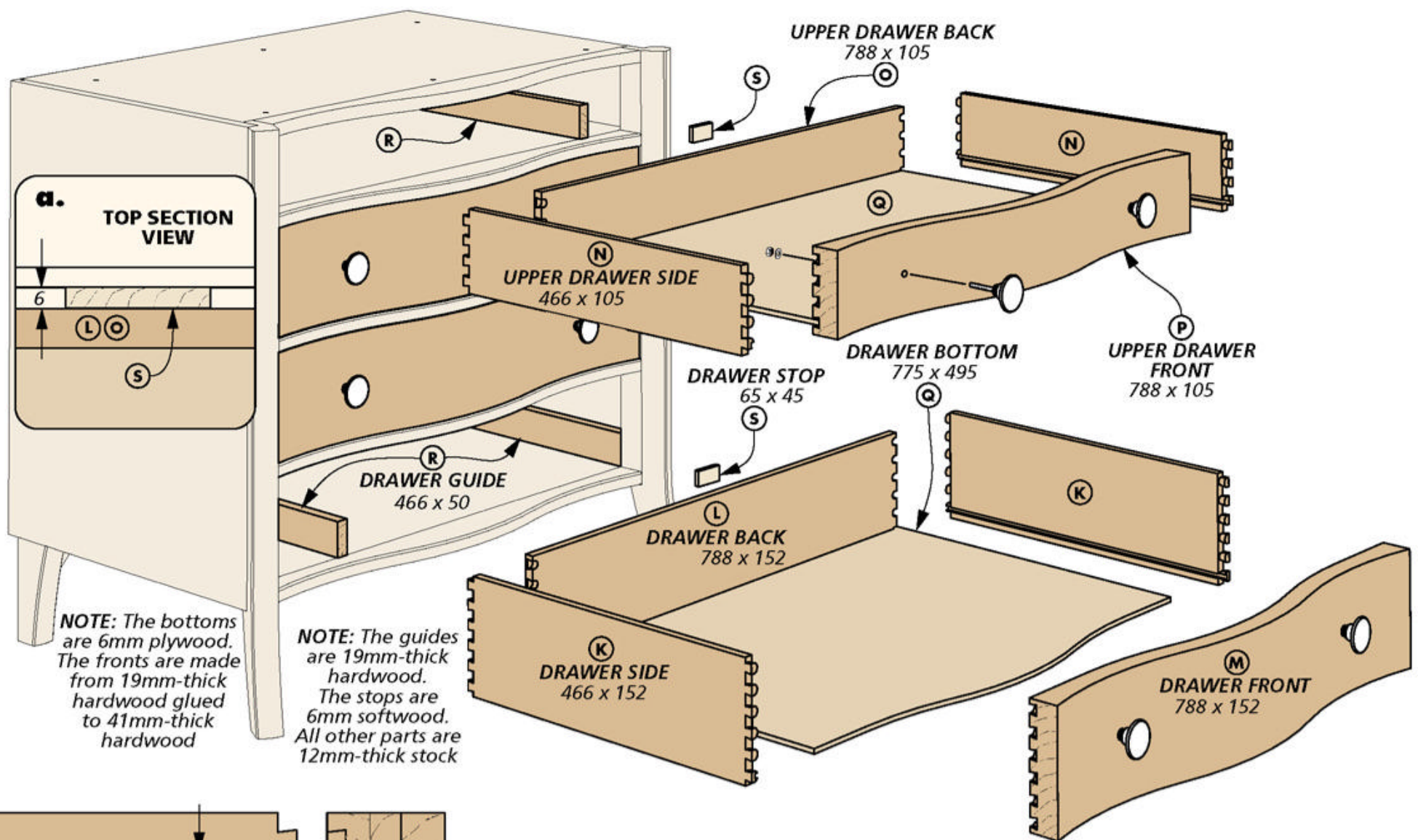
of each piece (as shown in detail 'b' above), except for the top edge of the top piece. Finally, glue the edges in place.



Profile. Head to the bandsaw to shape the profile of the legs.



Rout the Radius. At the router table, raise the cutters of the bit to 3mm below the centre of the leg assembly. Rout each side to form the radius of the exposed front and back sides.



A Quartet of DRAWERS

Four drawers fill the chest, with the fronts as the focal points. Those fronts consist of a two-part assembly: a thinner portion for the joinery and a thicker portion for the flowing curves.

DOVETAILS. The dovetails in the drawers are half-blind and machine-cut. The drawer fronts will later be glued up from two pieces each, as only the inner 19mm-

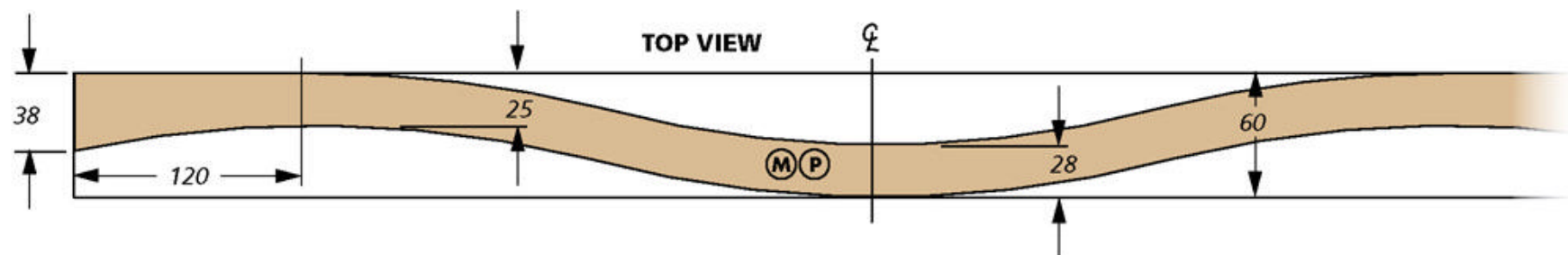
thick piece would fit in the dovetailing jig I used (refer to page 73 for source). I used the jig along with a router to cut dovetails in the sides, back and inner pieces of the drawer fronts.

SERPENTINE DRAWER FRONT. With the dovetails in place, the drawer fronts can be glued up. Clamp the ends and edges to make sure both front pieces are fully aligned. Once dry, attach the patterns (australianwoodsmith.com.au). Head over to the bandsaw to cut the drawer fronts to shape (Figure 1, next page).

When cutting the fronts, watch for

which way the end grain curves. The grain curving in yields the figure you see in our photos, while the grain curving out will produce an eye-like shape at the centre of the fronts.

Once the drawer fronts have been initially shaped on the bandsaw, they need to be cleaned up and sanded. Use a spokeshave to remove blade marks and approach the final shape, as in Figure 2. Once the surface is smooth, sand it down to final size. I kept a ruler handy while shaving and sanding to make sure my surface stayed flat.



DRAWER BOTTOM. As you may be suspecting, the drawer bottoms won't fit our drawers without some accommodation. To be sure each bottom would match its front, I used the drawer fronts to lay out matching curves on the front edge of the bottoms. From there, all that was needed was a trip to the bandsaw to cut the bottoms to the matching shape.

GROOVES. With the drawer bottoms shaped, the other pieces needed to be grooved to accept the bottoms. While the sides and backs can be easily grooved with a trench blade on the table saw, grooving the fronts required a different approach. Since I needed to follow the shape of the fronts, I used a slot-cutting bit on the router table (Figure 3). When

setting the bit height, be sure the groove lands within one of the tail sockets so it's hidden when assembled (Figure 3a).

As I mentioned, a table saw will do a fine job of grooving the sides and backs. Cut the grooves as shown in Figure 4, then the drawers are ready for assembly.

ASSEMBLY. Glue and clamp the drawers, fitting the bottoms into the grooves and the dovetails in their mating joints. Once the drawers are dry, attach the pulls to the front.

DRAWER GUIDES. The last pieces of the drawers are the guides and stops. When cutting the guides to size, sneak up on their final thickness. Put the drawers in place and test fit the guides. Aim for a 1mm gap around the drawer fronts.

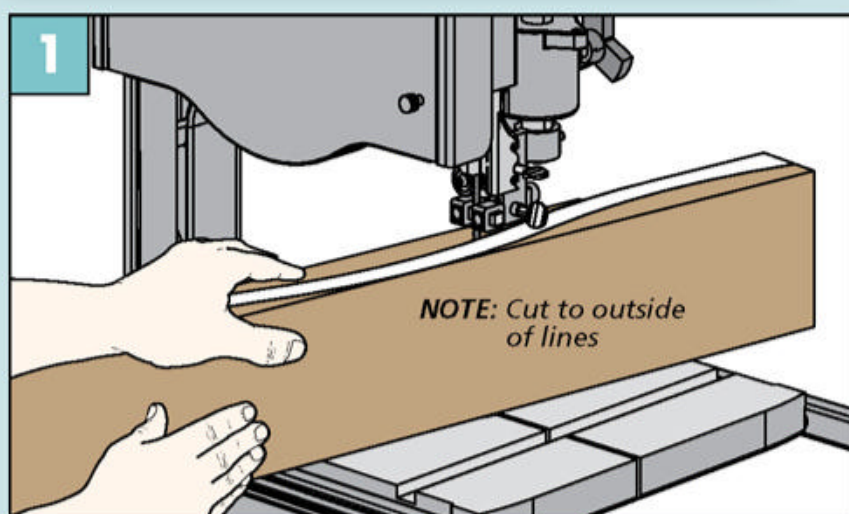
Plane the guides down as needed, then glue them in place.

BACK & STOPS. Finally, the back panel can be attached to the chest. Slide the panel into the grooves in the case sides, then screw it into the dividers. Two small pieces of softwood act as stops for each drawer. Once sized, use a block plane to finetune the fit, then glue the stops to the drawer back.

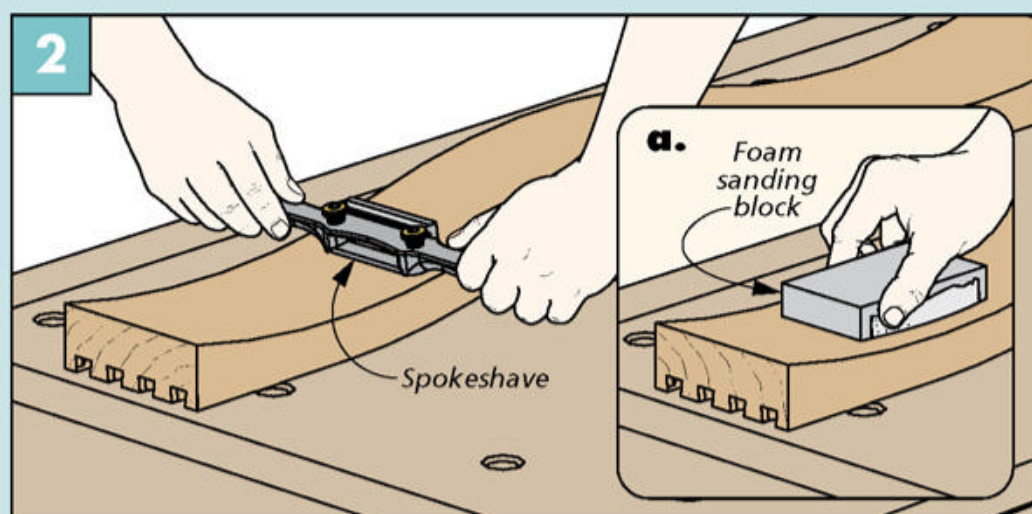


For the full-size patterns of the drawer fronts and drawer bottoms, visit our website at australianwoodsmith.com.au

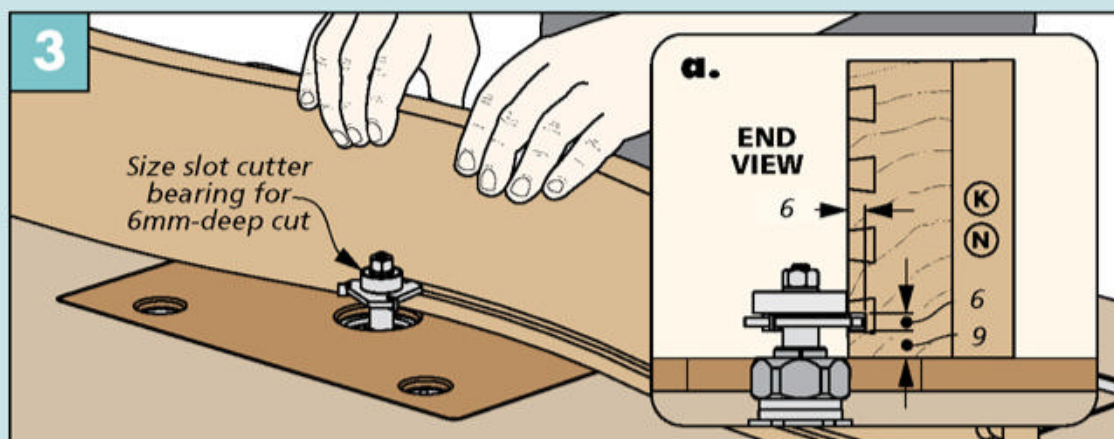
SERPENTINE DRAWER FRONTS



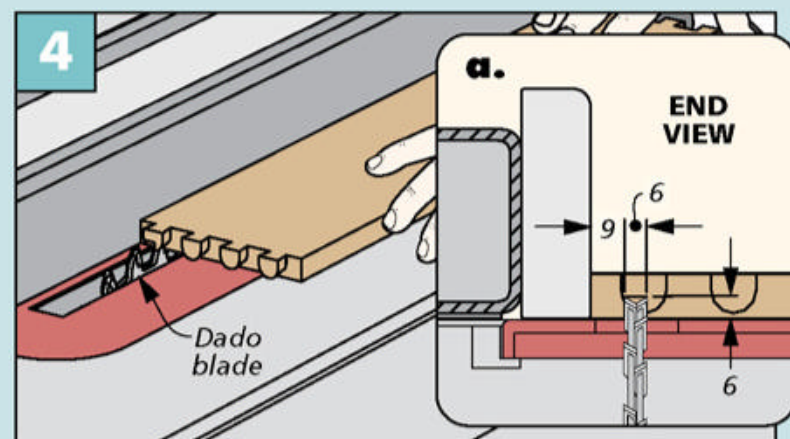
Serpentine Profile. Cut the profile on the bandsaw, staying outside the pattern for now.



Shave & Sand. Use a spokeshave to remove blade marks and shape the front. Sand the front smooth afterward.

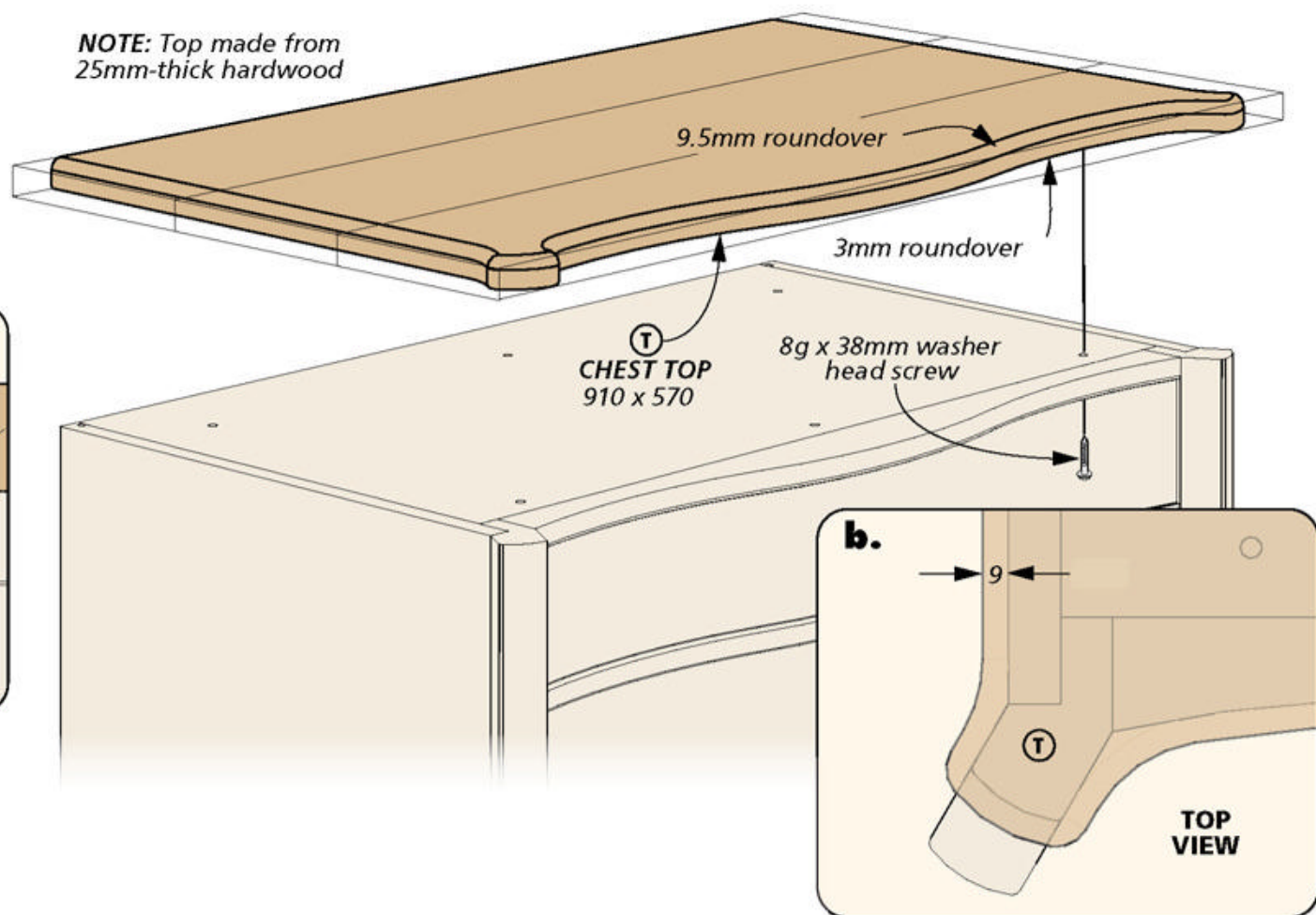
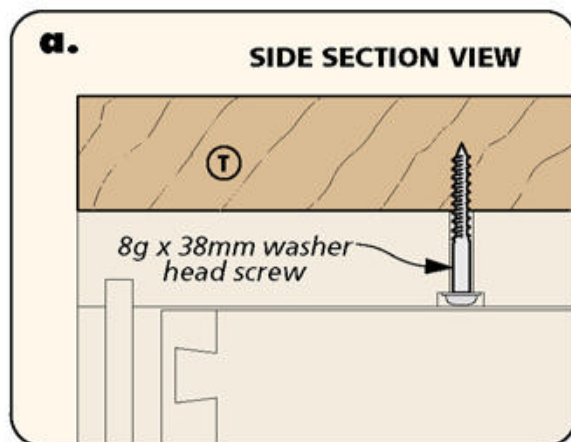


Bottom Groove. A slot-cutting bit on the router table will follow the serpentine shape. Locate the grooves within dovetails to hide them.



Tails First. At the table saw, cut grooves in the sides and backs at the same height as the fronts.

NOTE: Top made from 25mm-thick hardwood



A Handsome TOP

At this point, we've only got one thing left on the docket: the chest top. As you can see in the drawing above, it's a thick, broad panel shaped to match the stance of the front legs and the curve of the drawers. The roundover gives a sleek, flowing look to the top of the chest.



For full-sized patterns of top, visit our website at australianwoodsmith.com.au

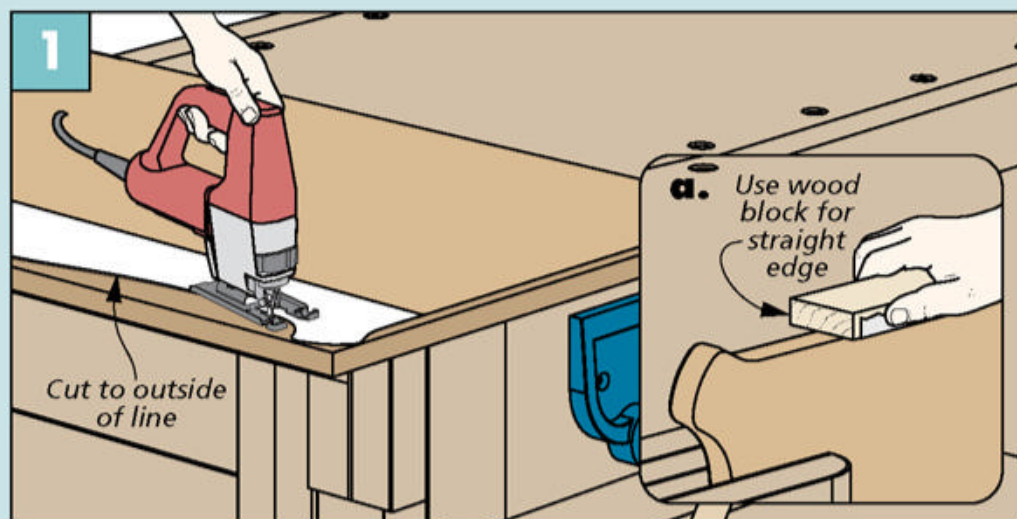
SHAPING. After gluing up the panel for the chest top and cutting it to size, apply the pattern (available at australianwoodsmith.com.au) to the front edge. As shown in Figure 1, use a jig saw to cut it to shape. Stay just outside the pattern when making the cut, then use a sanding block to clean the edges and reach the final shape (Figure 1a).

ROUNDING THE EDGES. To match the curves of the chest's front and its angled, sweeping legs, I routed roundovers on the corners of the top's front and sides. Take the top over to the router table and rout like you see in Figure 2 below, softening the

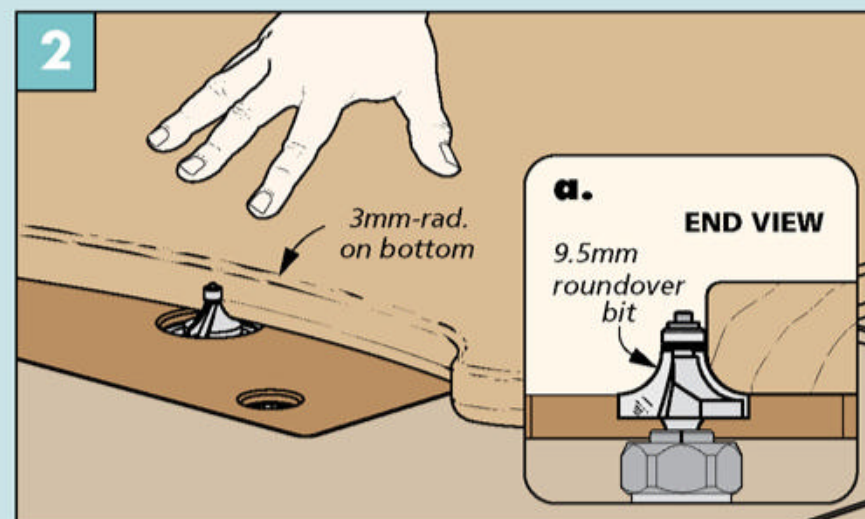
corners. As shown in detail 'a,' the roundover on the top has a greater radius than the one on the bottom.

SEATING THE TOP. The top is attached with screws driven through the case. When seating the top onto the chest itself, align the piece so the back side is flush with the back of the top. Next, align the chest top so that there is an equal reveal on either side, as in detail 'b' above. Once you're happy with the top's placement, clamp it in place, and drive screws up from underneath to secure it (as shown in detail 'a'). To finish the chest, I gave it three coats of spray lacquer. **W**

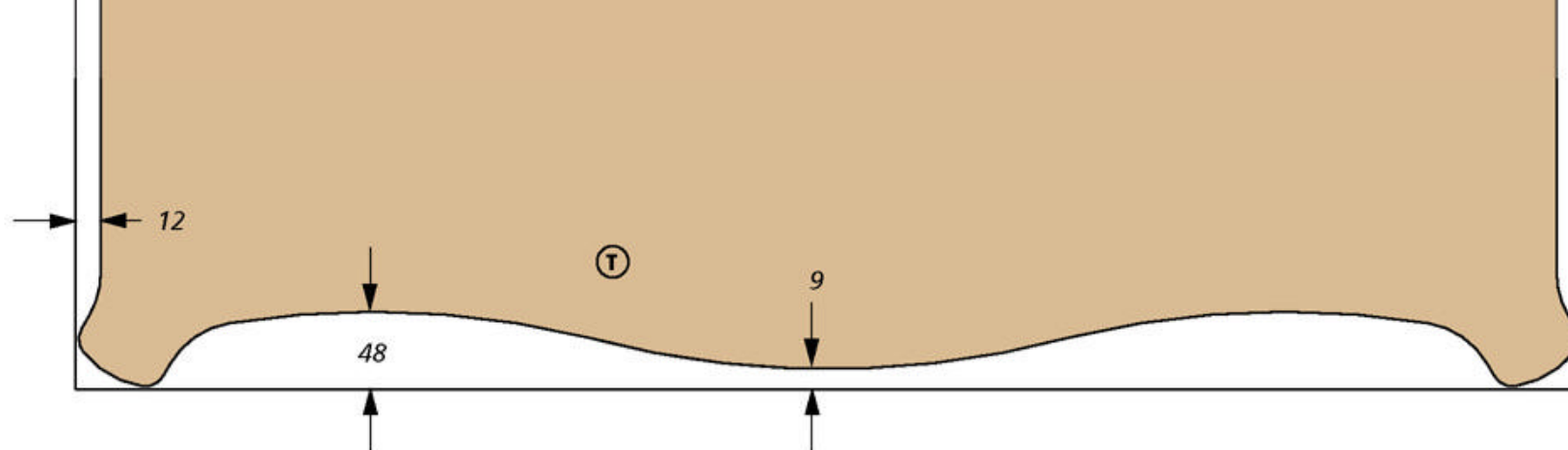
SHAPING THE EDGES



Shaping the Top. Use a jig saw to do the basic shaping of the top, keeping outside the pattern, then sand to the final shape.



Roundover. At the router table, round over the top and bottom edges of the front and sides on the chest top.



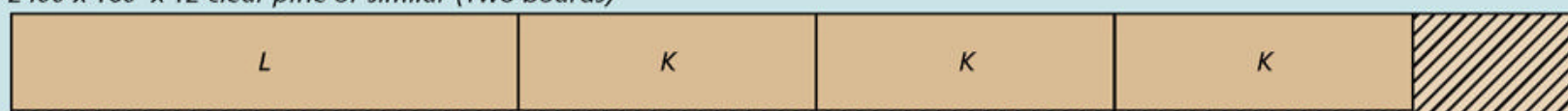
Materials, Supplies & Cutting Diagram

A Case Side (2)	660 x 510 x 19ply	I Rear Leg Bracket (2)	70 x 70 x 19	Q Drawer Bottom (4)	775 x 495 x 6ply
B Case Divider (4)	840 x 466 x 19ply	J Serpentine Edge (5)	790 x 70 x 19	R Drawer Guide (8)	466 x 50 x 19
C Case Top (1)	840 x 478 x 19ply	K Drawer Side (6)	466 x 152 x 12	S Drawer Stop (8)	65 x 45 x 6
D Case Back (1)	840 x 647 x 6ply	L Drawer Back (3)	788 x 152 x 12	T Chest Top (1)	910 x 570 x 25
E Front Leg Body (2)	812 x 90 x 38	M Drawer Front (3)	788 x 152 x 60	• (6) 8g x 32mmc/s Woodscrews • (16) 8g x 38 c/s Woodscrews • (8) Drawer Pulls • (6) 8g x 38mm Washer Head Screws	
F Front Leg Tongue (2)	660 x 32 x 19	N Upr. Drawer Side (2)	466 x 105 x 12		
G Front Leg Cleat (2)	152 x 32 x 38	O Upr. Drawer Back (1)	788 x 105 x 12		
H Rear Leg (2)	152 x 70 x 38	P Upr. Drawer Front (1)	788 x 105 x 60		

1800 x 140 x 12 clear pine or similar



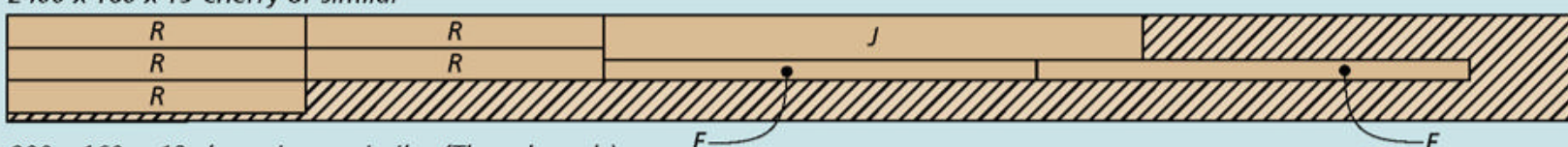
2400 x 160 x 12 clear pine or similar (Two boards)



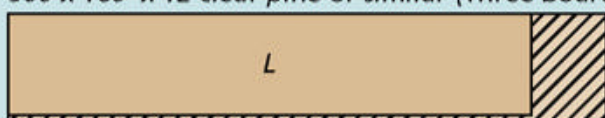
2400 x 160 x 19 Cherry or similar



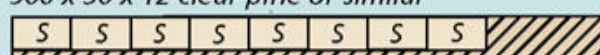
2400 x 160 x 19 Cherry or similar



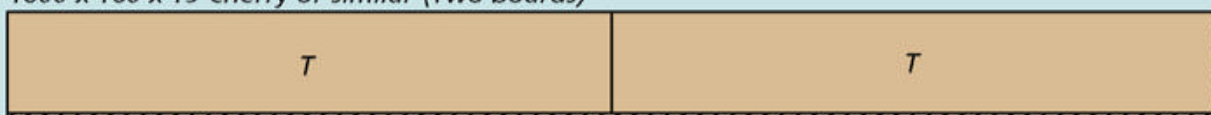
900 x 160 x 12 clear pine or similar (Three boards)



900 x 50 x 12 clear pine or similar



1800 x 160 x 19 Cherry or similar (Two boards)



2400 x 160 x 41 Cherry or similar



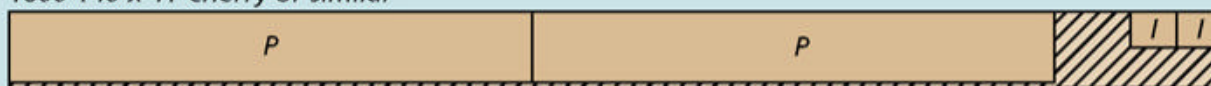
2400 x 160 x 41 Cherry or similar



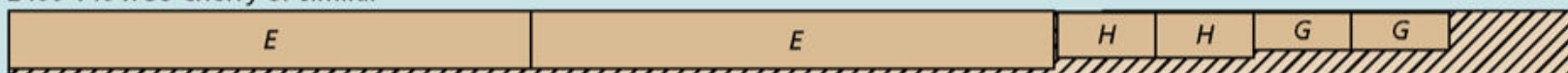
1800 140 x 19 Cherry or similar



1800 140 x 41 Cherry or similar



2400 140 x 38 Cherry or similar



ALSO NEEDED: One 2400 x 1200 sheet of 19mm plywood, one 1200 x 1200 sheet of 19mm plywood, one sheet of 2400 x 1200 x 6mm plywood, and one sheet of 1200 x 1200 x 6mm MDF or plywood

Table Saw Cabinet

Providing a home for blades, inserts and more, this cabinet is the perfect companion for your time at the table saw.

It's not always easy to keep an organised workshop. Whether you've become wrapped up in a project, unearthed the contents of a drawer looking for some long-lost tool or been stricken by a case of end-of-the-day apathy, clutter can build up quickly. For that reason, some of my favourite workshop projects are simple and efficient organisers — like the one you see here.

It's no secret to anyone with a workshop that space is always at a premium, and that extends to walls too. Our designer, Chris Fitch, had this in mind when creating the double-doored cabinet here. Behind the first door lies pockets for your inserts and the perfect place to store your most used blades. The second door

encloses lesser-used blades and trench spacers. Magnetic catches guarantee the doors will hold fast, while the pull and cutout make opening them a snap.

While function is certainly foremost in this cabinet, that doesn't mean there isn't some room for form as well. Hoop pine ply provides not only strength, but visual interest along the edges and a sleek look on the faces after a few coats of lacquer. Rounded corners and edges soften otherwise harsh lines, helping the cabinet look right at home in your workshop. Overall, this simple cabinet will work wonders when it comes to organising your table saw. And, as a wiser man than me once said, "Simplicity is the ultimate sophistication."

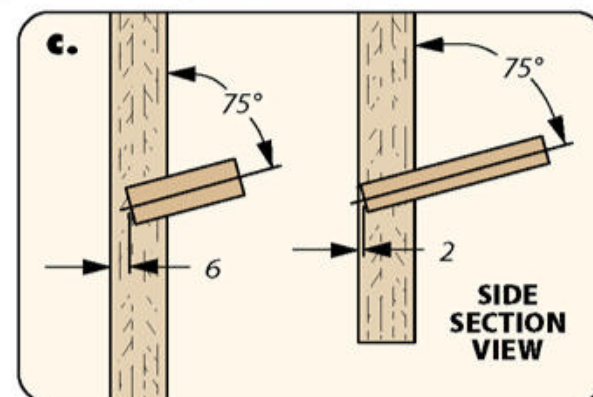
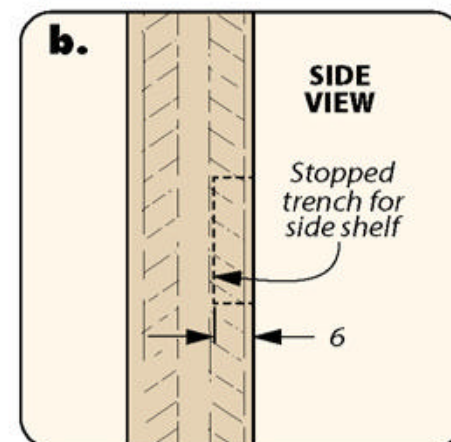
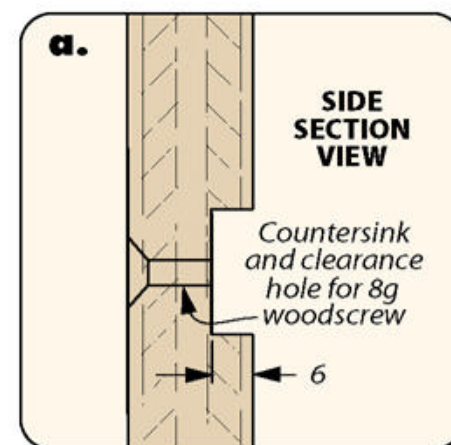
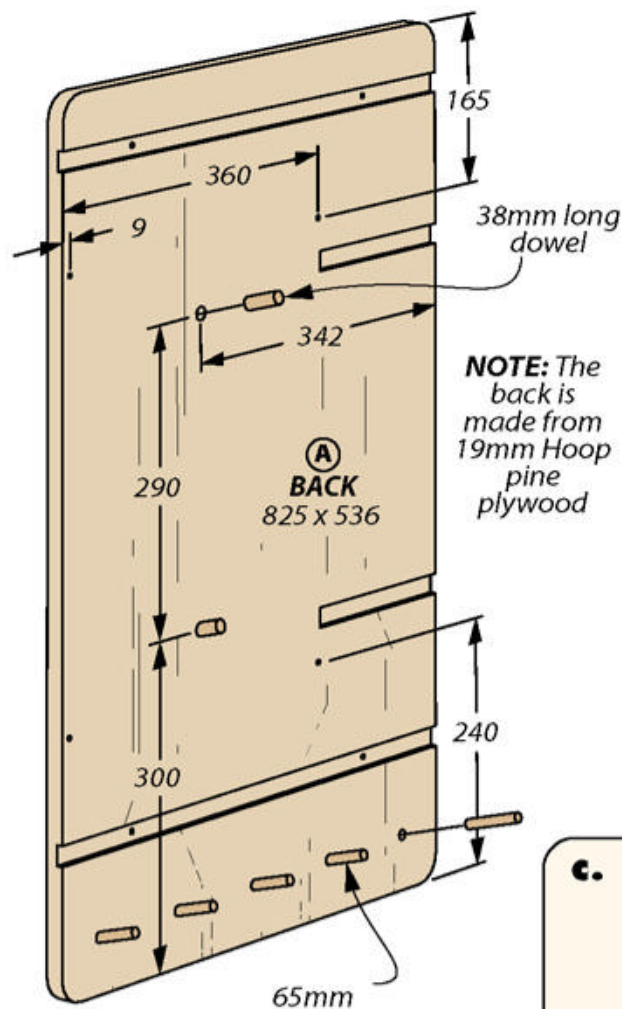
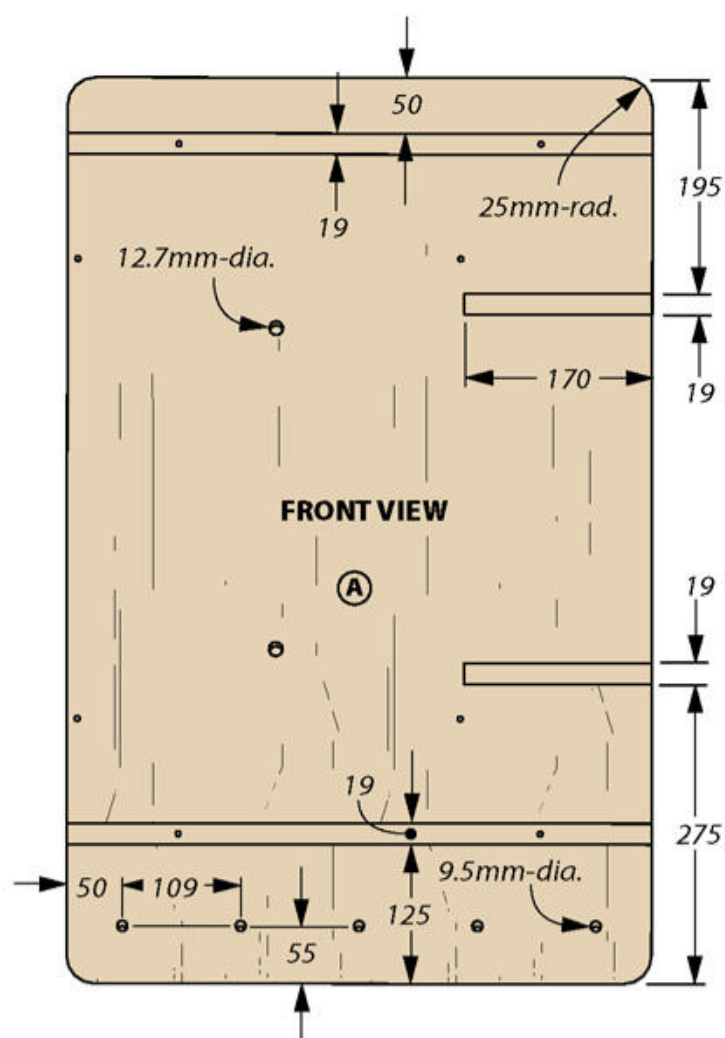


- ▲ The back side of the outer door features a pair of pockets for your inserts, while the front face of the inner door keeps your favourite blades easily at hand.



- ▲ The inner door maximises vertical space and makes for a great place to store specialty cutters and dado blades, both on the door as well as the back of the cabinet.





Beginning at the **BACK**

The first piece of this puzzle is the back, which forms the foundation the rest of the cabinet will be built on. The back itself is simple, with a few bits of basic joinery and a handful of holes for the dowel hangers.

TRENCHES. Fittingly, I chose to start the joinery for this cabinet at the table saw. After first cutting the back to size, I used a trench blade along with a mitre gauge and an auxiliary fence to cut the two through trenches that will hold the

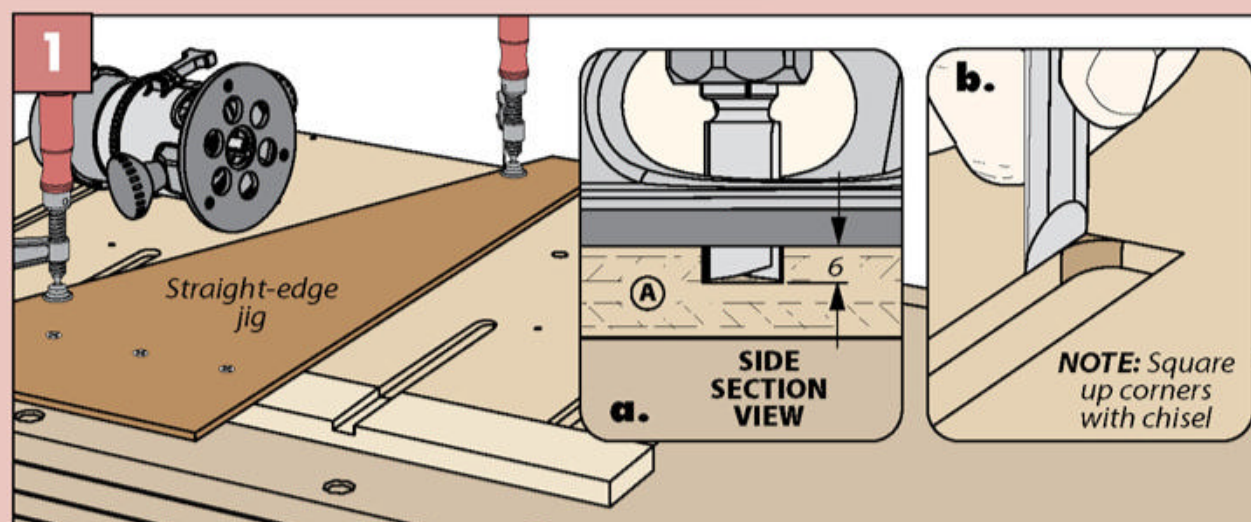
top and bottom of the case (shown in detail 'a' above).

With those in place, I got out a router and chisel to make the stopped trenches (detail 'b' above). These trenches will support a pair of shelves later on. As you can see illustrated in the box below, these are easy to make with a straight bit (matching the plywood's thickness) and guide.

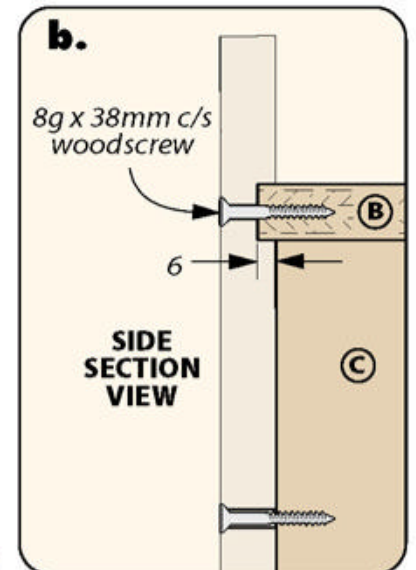
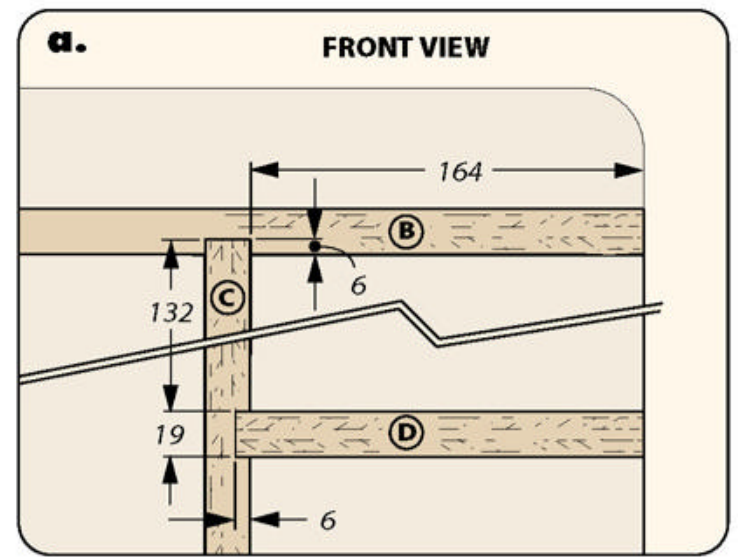
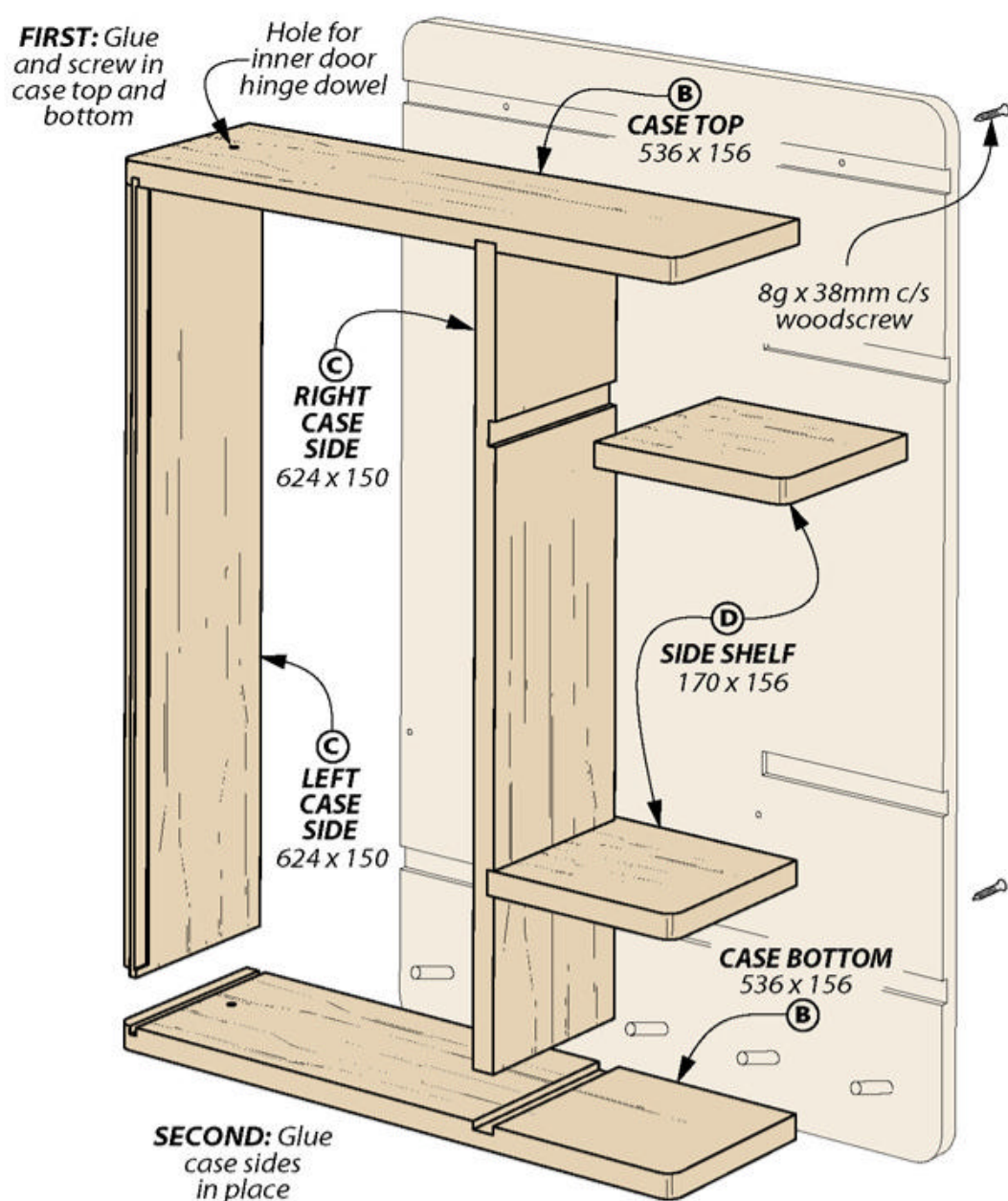
HANGER HOLES. The back features dowel hangers of two different diameters: smaller ones for lighter items and larger ones for blades. To keep blades and accessories from sliding off their hangers, the holes are drilled at a 15° angle (detail 'c'). To make sure my angle was right, I cut a block at 15° to use as a drilling guide. Lastly, I cut the dowels to length and glued them in.

ROUNDERS. Before finishing up with the back, I rounded off the corners. I started at the bandsaw, roughing out the radius, then took the back to the edge sander to reach the final shape.

MAKING STOPPED TRENCHES

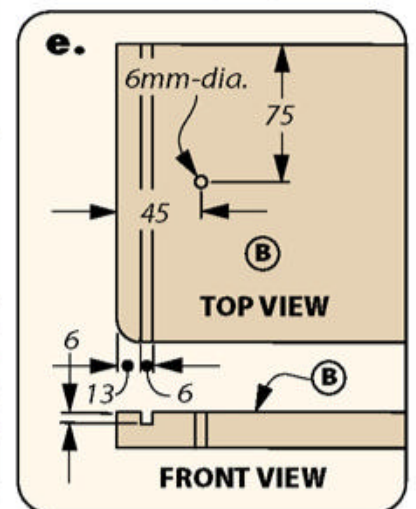
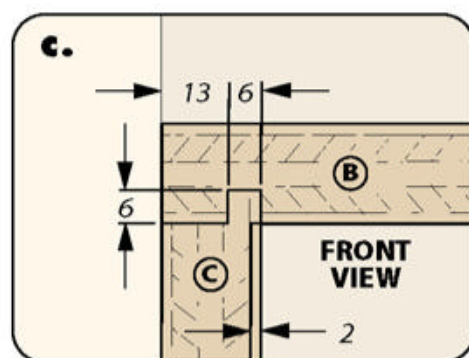
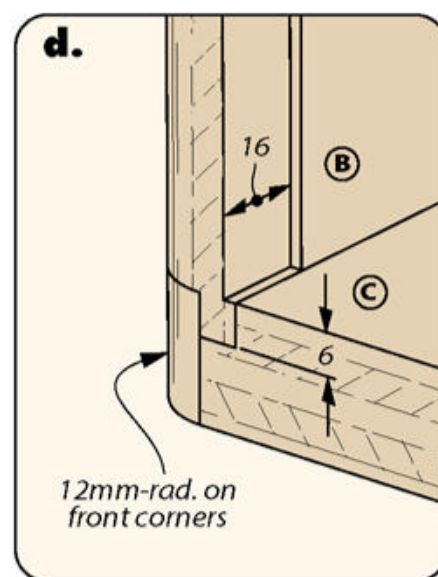


Router & Chisel. To make stopped trenches, use your router — along with a straight bit and jig — to remove a majority of the waste. Chisel out the corners to finish.



THIRD: Glue side shelves in place

NOTE: All pieces are made from 19mm Hoop pine plywood



ADDING THE CASE

Next on the docket are the case pieces, along with the shelving that goes beside them. The top and bottom fit into the through trenches cut in the back, with the sides sandwiched in between. The shelves are held by trenches on two sides.

JOINERY. After cutting the pieces to size, I began the case joinery at the table saw. After swapping in a dado blade, I rebated the ends of the left side, as you can see in detail 'c'.

Sticking with the dado blade makes quick work of the trenches in the top, bottom and right side. Keep in mind while making the cuts that the trenches holding the left side will be narrower for the

rebated ends. Details 'a' and 'e' depict these trenches.

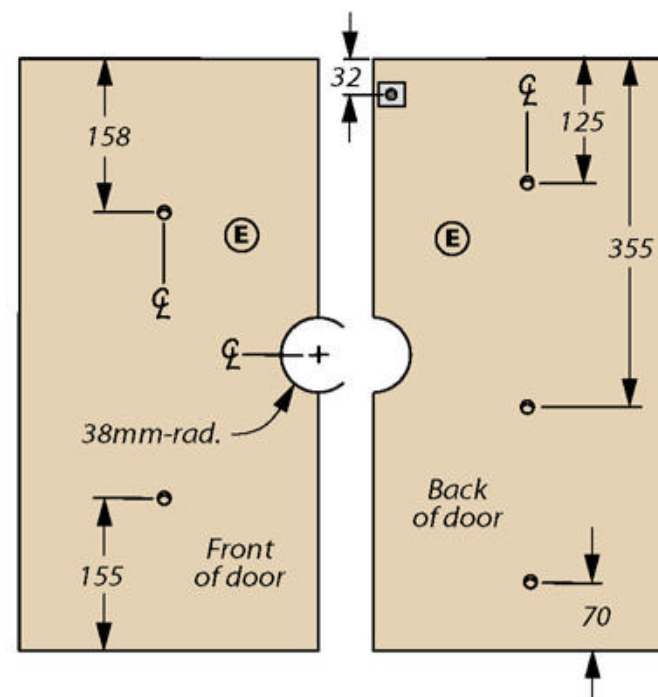
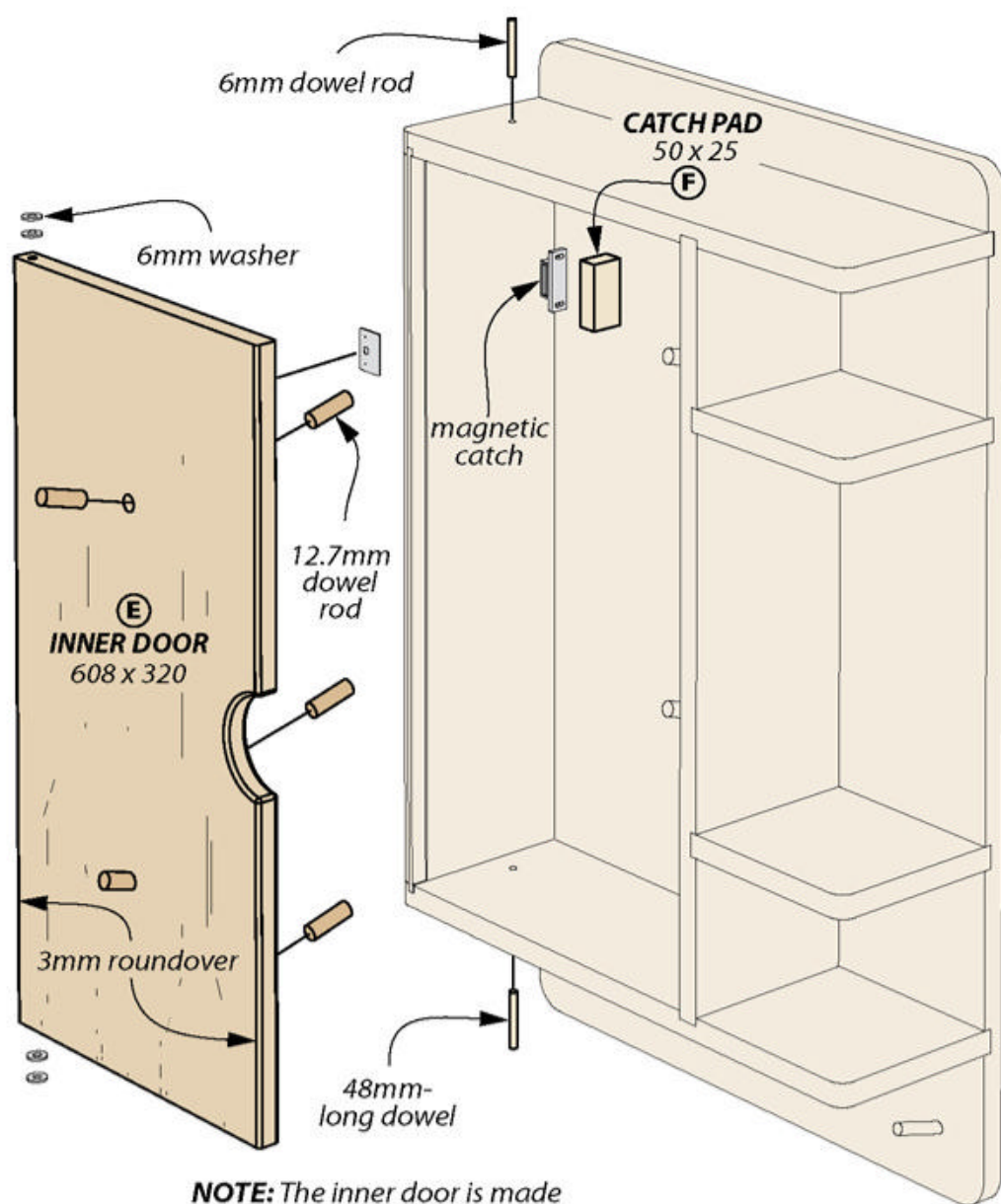
One piece of joinery remains for the case: a shallow groove for the piano hinge that attaches the outer door (detail 'd'). Since this is a stopped groove, I routed it as shown on the previous page. Lastly, this is a good time to drill the holes in the top and bottom pieces for the dowels that will hold the inner door (detail 'e').

ROUNDING IT OUT. As with the back, there are roundovers on the case parts. Looking to the main illustration above, you can see that some of the hard edges and corners will be eased. I started on the left, taking the left case side over to the router table. Using a roundover bit, one

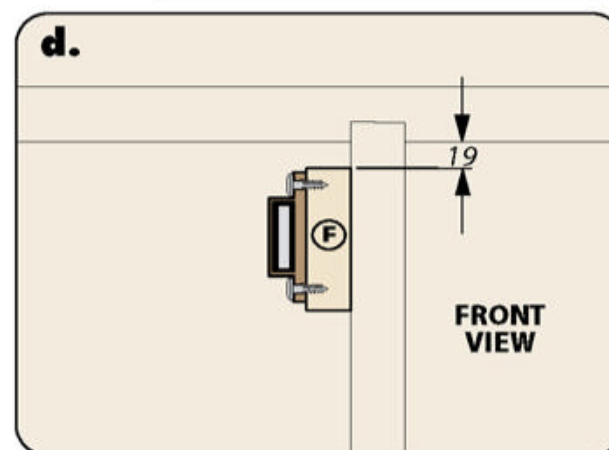
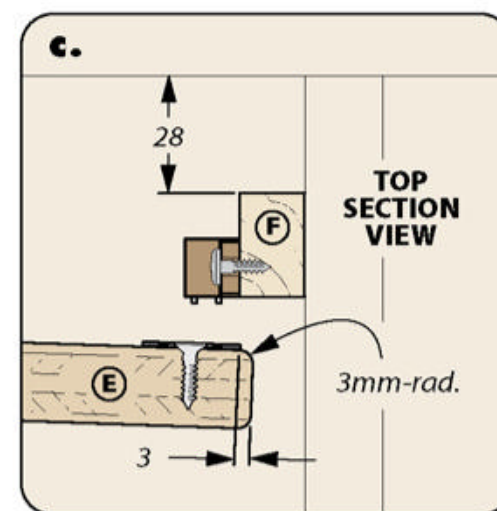
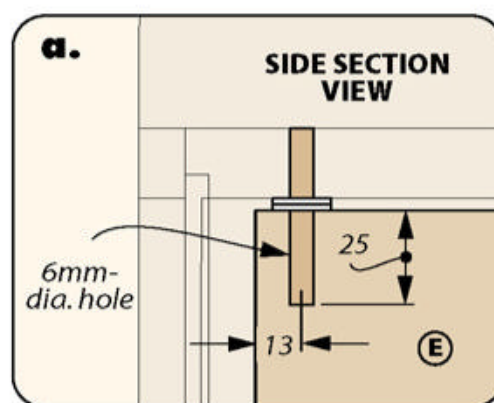
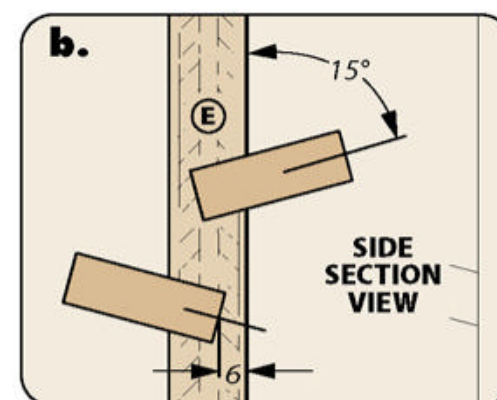
pass down the length of the board did the job (shown in detail 'd').

Next came the corners of the top, bottom and two shelves. I did these in the same manner as the back's corners — starting at the bandsaw and finishing the radii on the edge sander.

ASSEMBLY. The last step in building the case is to attach it to the back. Detail 'b' above should give you some idea of how the top, bottom and sides fit in place. I glued the top in first, then secured it with screws. I then glued in the right and left sides, securing them with screws as well. The bottom follows next, done in the same manner as the top. Finally, I glued the side shelves into the right side and back.



NOTE: The 6mm dowels are oversized and trimmed flush after installing inner door



A Duo of DOORS

Though most of the case has been made, there are still two important parts left: the inner and outer doors. Not only do they enclose the case, but they also offer a significant amount of storage for blades, shims and the various inserts you use.

INNER DOOR. I started with the inner door. After sizing the piece, I used a compass to lay out the shape of the notch (shown in the main illustration above). I took the door to the bandsaw to rough out the shape, cutting a little shy of my layout line. At the spindle sander, I removed the last bits of waste to reach the final shape of the cutout.

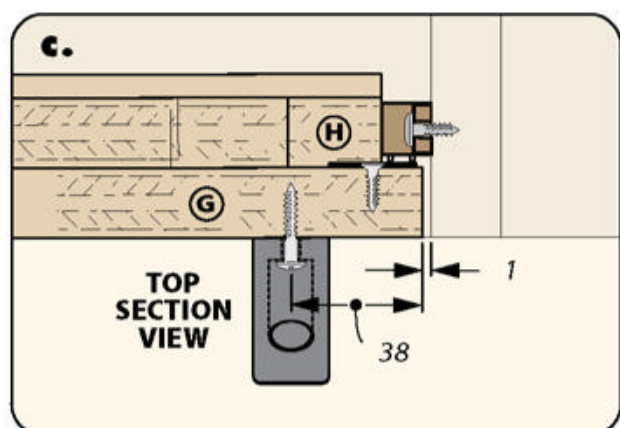
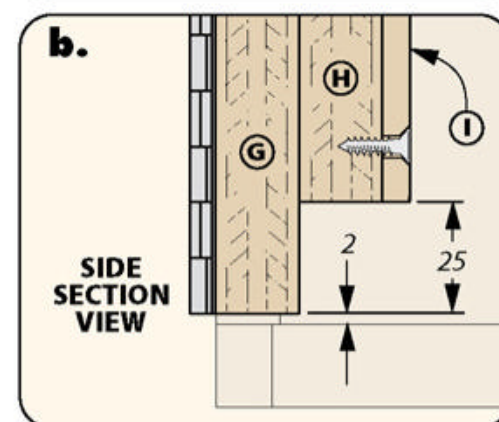
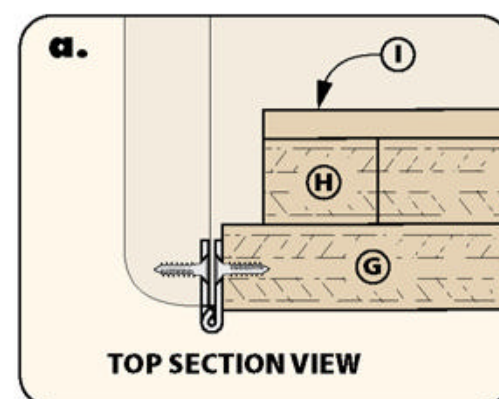
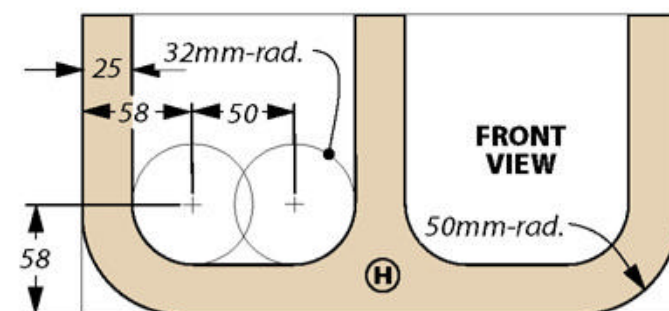
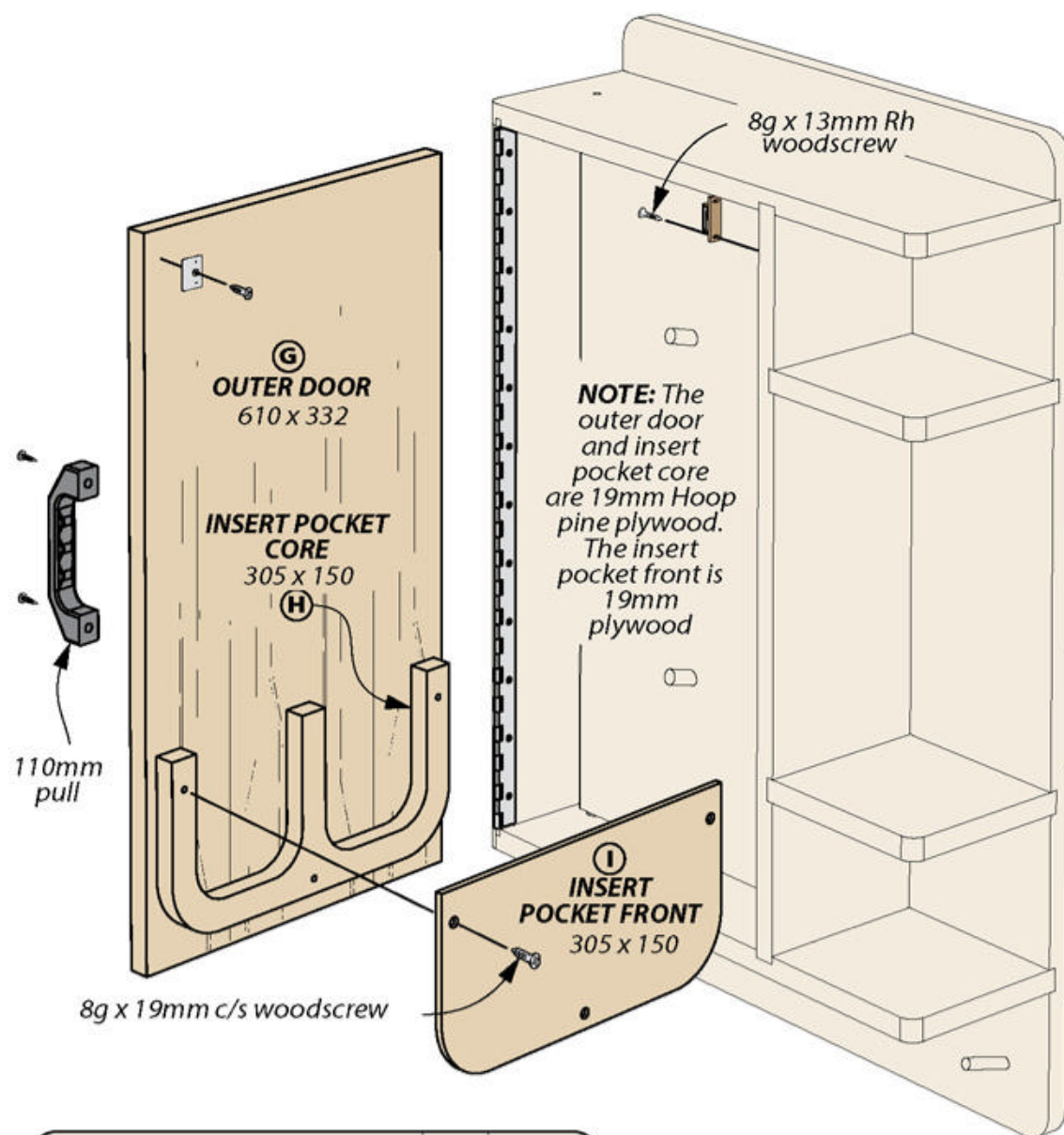
DRILLING FOR DOWELS. Next up is a bit of drilling. The inner door features sizeable dowel hangers for holding a num-

ber of table saw blades. I used the same mitred block here to guide my drill as I did with the back piece.

While this technique works well enough for the dowel hangers, I wanted more precision when it came to the holes that the door will pivot on. To make sure they'd be perfectly aligned, I made a guide block of the same thickness as the door, then took it over to the drill press. After drilling through it, I could then use it to make sure my hand drill stayed perpendicular to the door.

CATCH PAD. The catch pad is a simple block of plywood for the magnetic catch to be mounted on. Once you've cut it to size, set it aside for now. We'll get back to it in just a moment.

INSTALLING THE INNER DOOR. We're nearly ready to put the inner door in place. First though, there's a roundover on the edges of the inner door. After a trip to the router table, you'll be ready for installation.



OUTER DOOR

As you can see in the art above, the outer door itself couldn't be simpler — just aim for a 2mm gap between the case and door. After sizing, turn your attention to the insert pocket pieces. While we do provide dimensions, I'd encourage you to use them as guidelines, then adjust the size as needed to fit your own inserts.

INSERT POCKET. Once the pocket pieces are sized, lay out the outer radii on both pieces. When laying out the "pockets" of the core piece, use your inserts as templates. The outside radii were easiest to make on the bandsaw. Then I cleaned them up with a flush trim bit.

When it comes to the "pockets" themselves, I started on the drill press. A large Forstner bit (or a hole saw) is a great way to establish the corners of the pockets. From there, I returned once again to the bandsaw and followed my layout lines to the holes. After routing off the blade marks, screw the pocket pieces onto the centre of the door.

The rest is mostly a matter of drilling and screwing. The pocket core is glued in place, then countersunk screws attach the front. The magnetic catches can be screwed on, then the outer door can be attached with the piano hinge. Finally, add the pull to complete your new table saw companion. **W**

Start by pressing the dowels slightly through the top and bottom. Slip the washers over the ends of the dowels and add a bit of glue on the ends. Set the door in place and sink the dowels in fully. Leave the ends of the dowels proud so they can be trimmed flush to the case. Finally, glue the catch pad onto its spot.

Materials & Supplies

A Back (1)	825 x 536 x 19ply
B Case Top/Bottom (2)	536 x 156 x 19ply
C Case Sides (2)	624 x 150 x 19ply
D Side Shelves (2)	170 x 156 x 19ply
E Inner Door (1)	608 x 320 x 19ply
F Catch Pad (1)	50 x 25 x 16
G Outer Door (1)	610 x 332 x 19ply
H Insert Pocket Core (1)	305 x 150 x 19ply
I Insert Pocket Front (1)	305 x 150 x 6ply

- (1) 6mm-dia x 300 Dowel
- (1) 9.5mm-dia x 600 Dowel
- (1) 12.7mm-dia. x 300 Dowel
- (9) 8g x 38mm c/s Woodscrews
- (1) 900mm Piano Hinge
- (1) 110mm Plastic Pull
- (2) Magnetic Latches

NEEDED: One 1200 x 1200 sheet of 19mm Hoop pine plywood, and one 305 x 305mm sheet of 6mm Hoop pine plywood



Exploring Bowl Design

Mark Sanger gets into the detail of form and simple decorative effects.



When developing the design of a bowl you need to take into account the proportions along with several options available for the overall bowl aesthetic. These include the foot, which can be turned within the existing seasoned blank, or as a second option, a foot turned from a separate piece of wood, saving waste when producing a pedestal bowl.

In this article I am expanding this further to look at how the internal form of the bowl may affect its initial design for an out-curve rim, or when there is a need for an undercut rim, and how to produce this with a bowl gouge and other tools, such as a scraping option if you are not confident to date with the gouge. Often simple external texture is all that is needed to add interest to a basic bowl, so here I am also introducing a few techniques to produce these, using a spindle gouge, skew and profile tools to produce beads and coves, so ex-

panding the variation we can employ in our bowl making.

Again, I am using seasoned purchased blanks to show specific techniques for you to experiment with. Some of these techniques are not optimal – for example, when it comes to turning beads and coves I would always recommend using a spindle gouge, as the cutting action will always provide the best finish over the scraping option produced by a skew in scraping mode or a beading/profiling tool. But, when I started turning, it took me a while to gain the ability to roll a

bead or produce a cove with a gouge or skew, so while I urge you to learn these techniques to start with, reasonable results can be achieved using beading/profile tools and the skew in scraper mode, with the pros and cons of each being covered.

It is my belief that if the tool and technique used is safe and achieves the desired result, then use it while building up skill on waste wood of the foundation techniques. As ever try out the ideas here or mix it up a bit with yours. Above all stay safe and have fun.

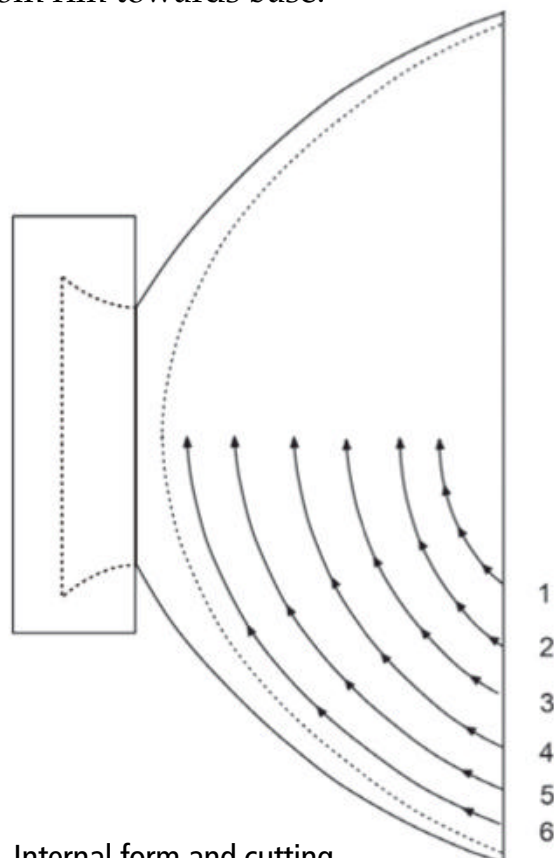
Rim and internal bowl profiles

When I started turning bowls the rim to me was simply the top of the bowl as I gave little, if any, consideration to its shape and how this may affect the utility of the bowl. If we consider the function of the bowls we are making before stepping up to the lathe we can produce a far better project for its function – after all, a bowl's primary purpose is that of function.

Let us consider the open form that is used for bowls where salad, fruit or other large food items are stored. Or where easy removal of foodstuffs or items from the bowl is required, such as, soap, rice, fruits and similar, commercially produced fruit bowls, and a small ash (*Fraxinus excelsior*) bowl turned purely as an aesthetic form.

For ease of access and effective storage the open form bowl with an outwards flowing rim is the most effective option for storing larger items. It is the simplest to produce and generally the first form of bowl that we start turn-

ing, as the internal form allows for the basics of the bowl gouge to be practised through a simple curved/plunge cut from rim towards base.



▲ Internal form and cutting direction for simple bowl.



▲ Bowl with scorched exterior to provide contrast.



▲ Simple, functional bowls.

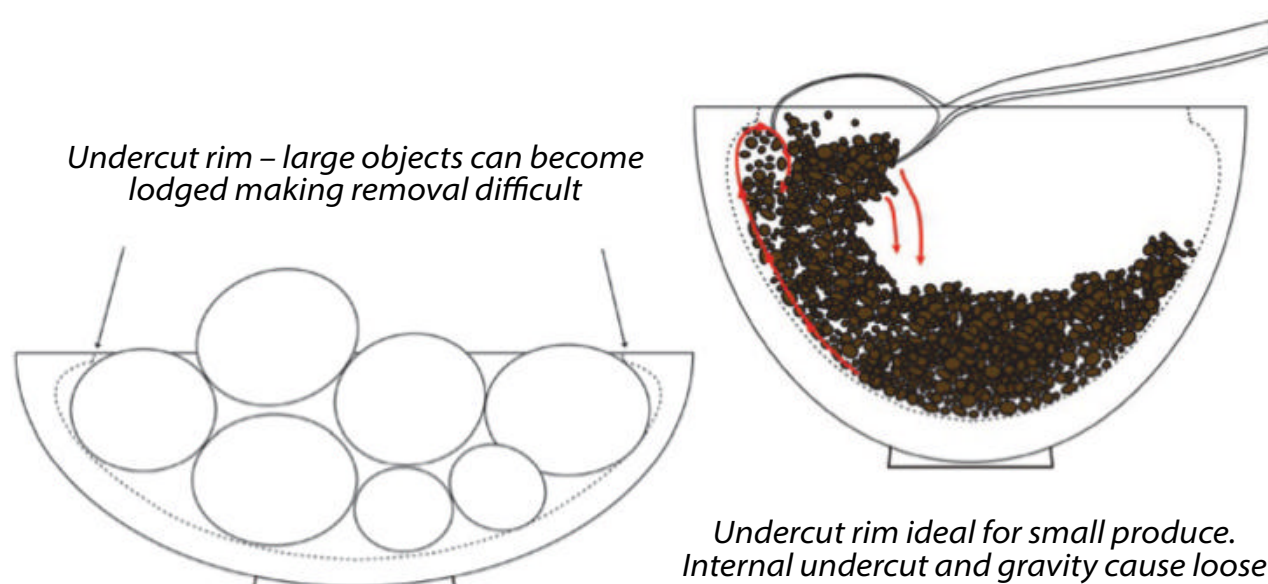
Undercut rim

An undercut rim is one that flows inwards towards the rim of the bowl as shown in the picture at right. It is aesthetically pleasing, having the advantage of adding an appearance of depth to a shallow bowl, as well as a functional purpose that we should consider when deciding on it for a utility bowl. If we are wanting to store large fruit or similar produce the undercut can hinder removal of items due to them becoming lodged under the rim, as illustrated in the image. For fine foodstuffs such as small grains, pulses and similar, an undercut rim has the benefit of acting as a trap, helping to stop the produce spilling out of the bowl when scooped up by hand. Gravity as well as the shape of the undercut rim means the produce being removed should readily fall back into the bowl without spilling over the side.

The undercut rim also acts as a truss, strengthening the rim and protecting it from chipping if dropped.



Undercut rim bowl.



Undercut rim – large objects can become lodged making removal difficult

Undercut rim ideal for small produce. Internal undercut and gravity cause loose items to fall back into bowl

Variations on a theme

The simple addition of a particular rim can alter the aesthetics of a bowl, having first taken into account the utility. Take a look at the illustrations. The simple rim works well, but the roll-top rim, being tactile to the touch, softens the appearance of the bowl rim. A down-slope rim (outwards) draws the eye of the viewer to the outside profile of the bowl. An inward down-slope rim draws the eye of the viewer down into the bowl. The un-

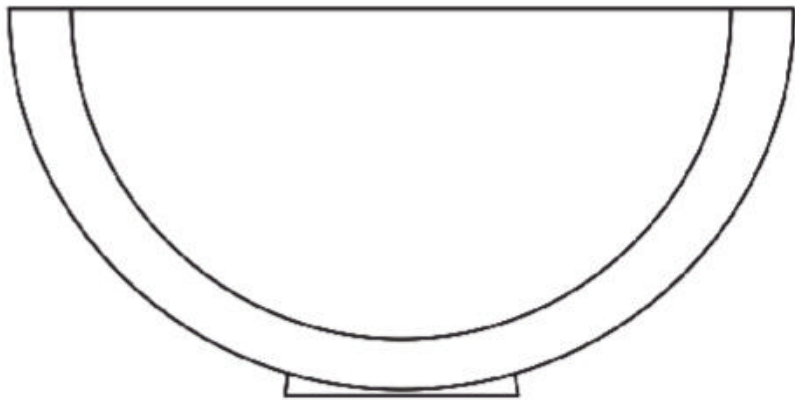
dercut rim is ideal for use with food items. The drop-rim looks as if there is a bowl within a bowl, and is used here purely aesthetically. The image features a textured, coloured drop-rim bowl with gold leaf applied to the inner bowl section below the line of the inner drop rim. The lip of the drop rim creates a contrast border that gives the illusion of a bowl-within-a-bowl.



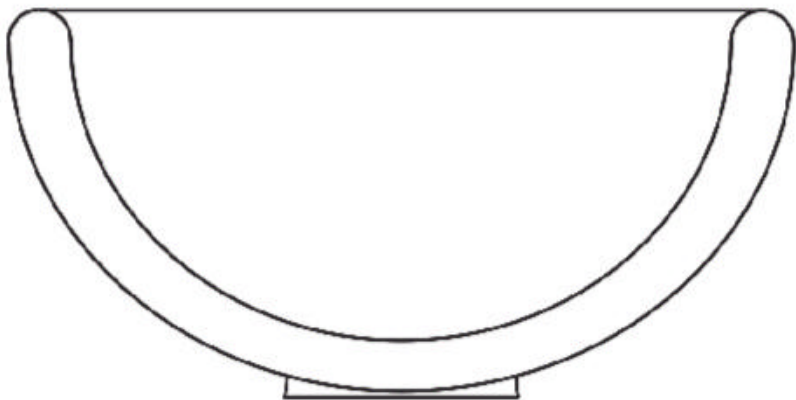
▲ Drop-rim bowl with metal leaf interior.

Rim profiles

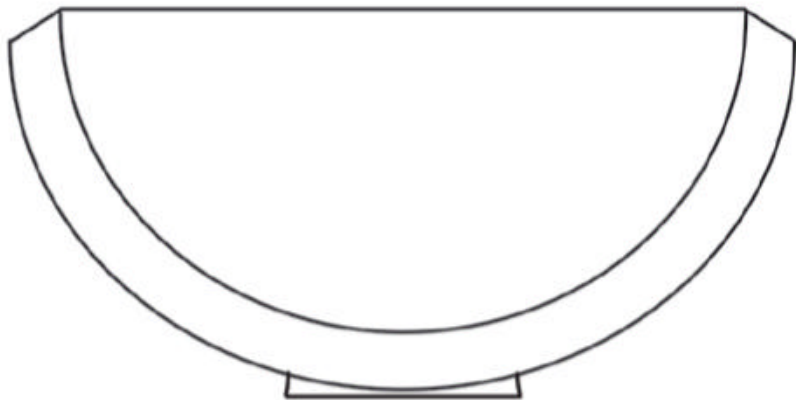
Simple rim



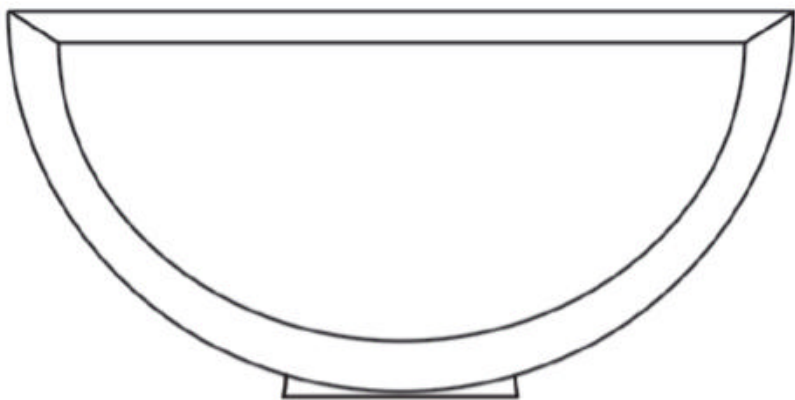
Rolled rim



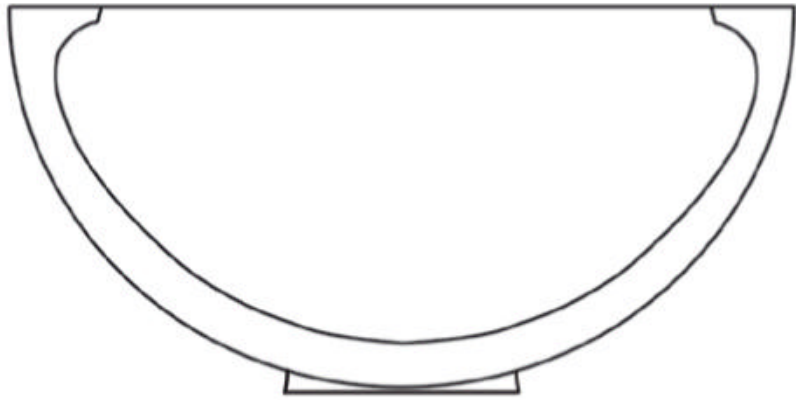
Down-slope rim (outward)



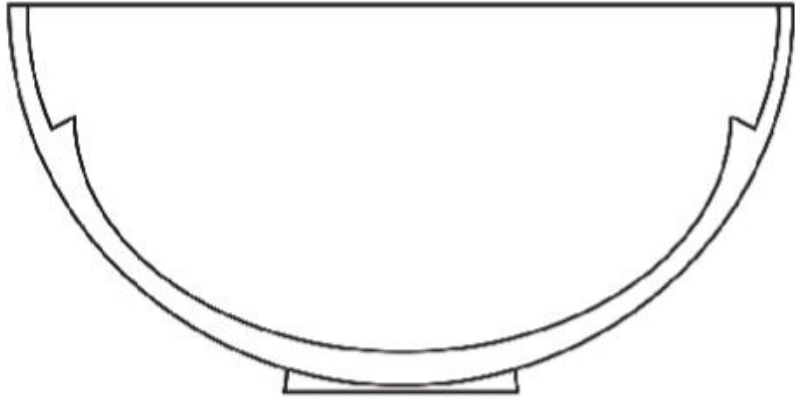
Down-slope rim (inward)



Undercut rim



Drop rim





▲ Marking the inner rim depth.



▲ Cutting down to the inner rim depth.



▲ A skew used in scraping mode to sharpen detail.

Drop-rim bowl technique

The rims shown are simple to achieve with basic cuts using standard turning tools. The drop-rim, however, is shown here for clarity in how I go about producing this style of internal bowl/rim profile. First, the inside profile of the bowl is turned leaving the wall thickness oversize, depending upon the desired finished thickness and profile, with the location of the start of the drop rim being marked onto the inside of the bowl. A bowl gouge is then used, taking fine cuts to reduce the wall thickness from the top of the rim down to the inner rim line. Finally, the toe of a skew presented in trailing mode is used to sharpen the detail/profile of the groove, with the final surface being finished with abrasive from 120-320 grit.

Adding turned texture to work

In addition to the various rims that we can include in bowl design, the type of form for the bowl itself as well as foot design affect the overall impact of the bowl itself. Texture can also be included and turned, using basic turning tools to the outside of our bowls. This is done using the skew in scraping mode to create fine grooves. There are so many textures available to us, so here I am starting with a few purely turned textures with beads and grooves as shown turned on the bowls. The bottom image shows a selection of bowls and lidded forms where the impact of beads and coves can clearly be seen on the finished pieces.

COLOUR

Adding colour to the beads and coves of a bowl and then sanding and buffing the surface produces a distressed look that can make the bowl itself look like an antique. The delightful patina adds visual interest to the bowl and can lift a simple form to a higher level.



Selection of patinated bowls by Mark Baker with beaded and coved detail.

TURNING SPEED

Beads and coves are produced between centres with the deft use of a skew chisel and a gouge. When you are dealing with a bowl on a faceplate you will have different diameters being presented to the tool within seconds as it travels from the rim of the bowl to the base. The larger the diameter the faster the speed of the bowl as it passes over the cutting edge. This means that a scraper will produce a better finish on fast turning rim sections than on the slower moving base of the bowl.

Tools used

The tools that I use and teach for turned texturing are always centred around cutting tools, with the spindle gouge and skew always being my go-to option. Cutting tools slice the wood fibres and as such are the most efficient tools to use, producing a fine finish especially when turning cross-grain timber. Tear-out can be induced with scraping-type steel and carbide tools, such as beading tools or small, round-nose scrapers, as these can compress and rip the end-grain fibres instead of slicing cleanly through them as with the gouge or skew. The right-hand table shows a selection of tools – a small spindle gouge with fingernail profile, skew beading tools and a homemade round-nose cove profiling/scrapper tool.

Beads and coves with various tools

Turning beads and coves was the first texture that I and many others started with when turning. But I must confess that I initially used profile tools, such as a beading tool, when first starting turning to produce my beads, as well as a homemade scraper/profile tool ground to the radius I needed for the size of cove I wanted to produce.

Before I show how to produce the beads and coves, I want to clarify the pros and cons of each method and tool, and to make this as simple as possible I have included a simple table to help.

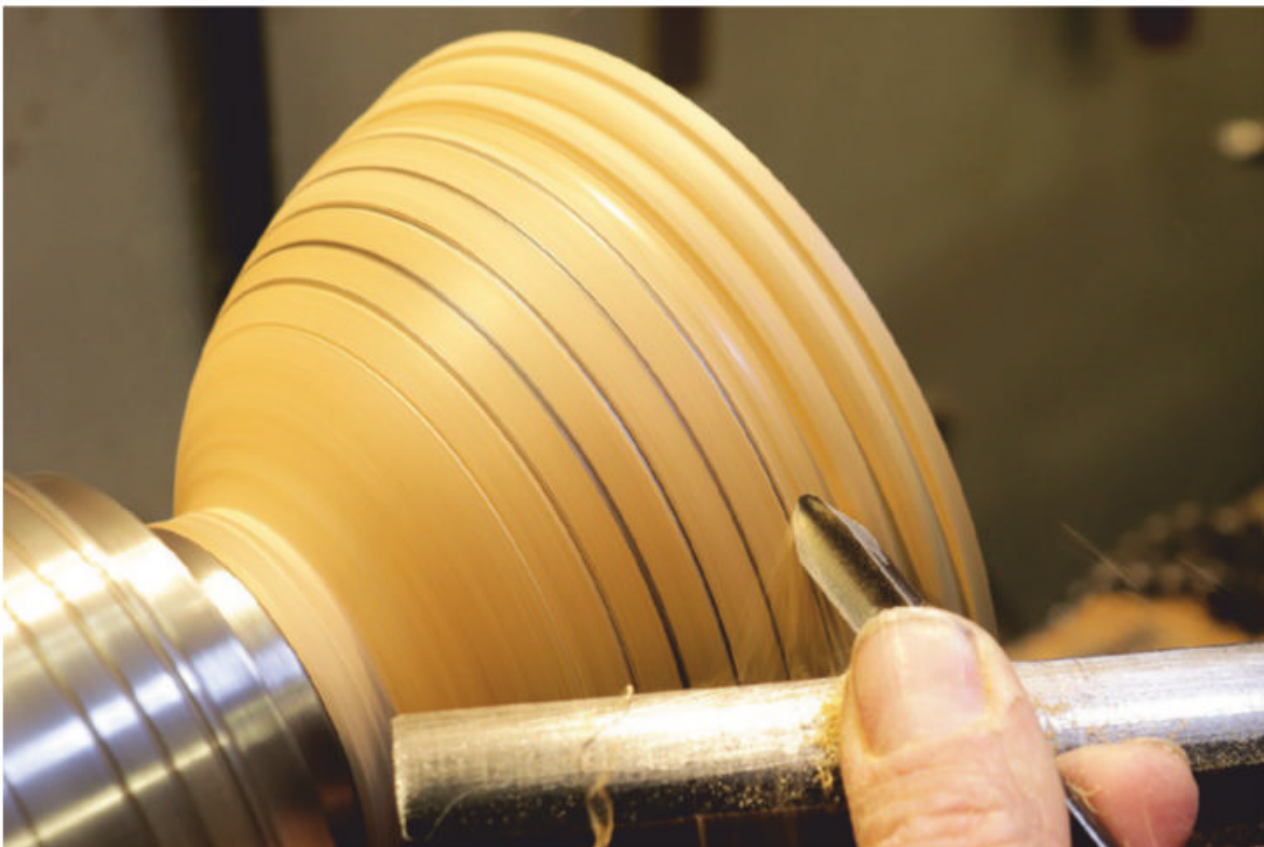


▲ Tools from the top: bead-forming tool, scraper, spindle gouge, skew chisel, bead-forming tool.

Tools used	Pros	Cons
Spindle gouge Standard slicing mode	Slices fibres giving excellent surface finish. Can produce infinite sizes of beads and coves	Steep learning curve until ability gained to use effectively
Spindle gouge Scraping mode	Simple to use for producing infinite sizes of coves	Can produce tear-out on end-grain fibres depending upon wood density and grain
Skew Standard slicing mode	Slices fibres giving excellent surface finish. Can produce infinite sizes of beads and coves	Steep learning curve until ability gained to use effectively
Skew Scraping mode	Simple to use for producing infinite sizes of beads	Can produce tear-out on end-grain fibres depending upon wood density and grain
Beading tool Scraping mode	Simple to use for producing set size beads as tools manufactured 3mm, 6mm, 10mm	Can produce tear-out on end-grain fibres depending upon wood density and grain
Convex profile/scrapers Scraping mode Homemade HHS/ profile tool Flat carbide profile tools	Simple to use for producing set size coves as tools manufactured or ground	Can produce tear-out on end-grain fibres depending upon wood density and grain



▲ Using a spindle gouge to cut the right-hand side of the bead.



▲ The spindle gouge cutting the left-hand side of the bead.



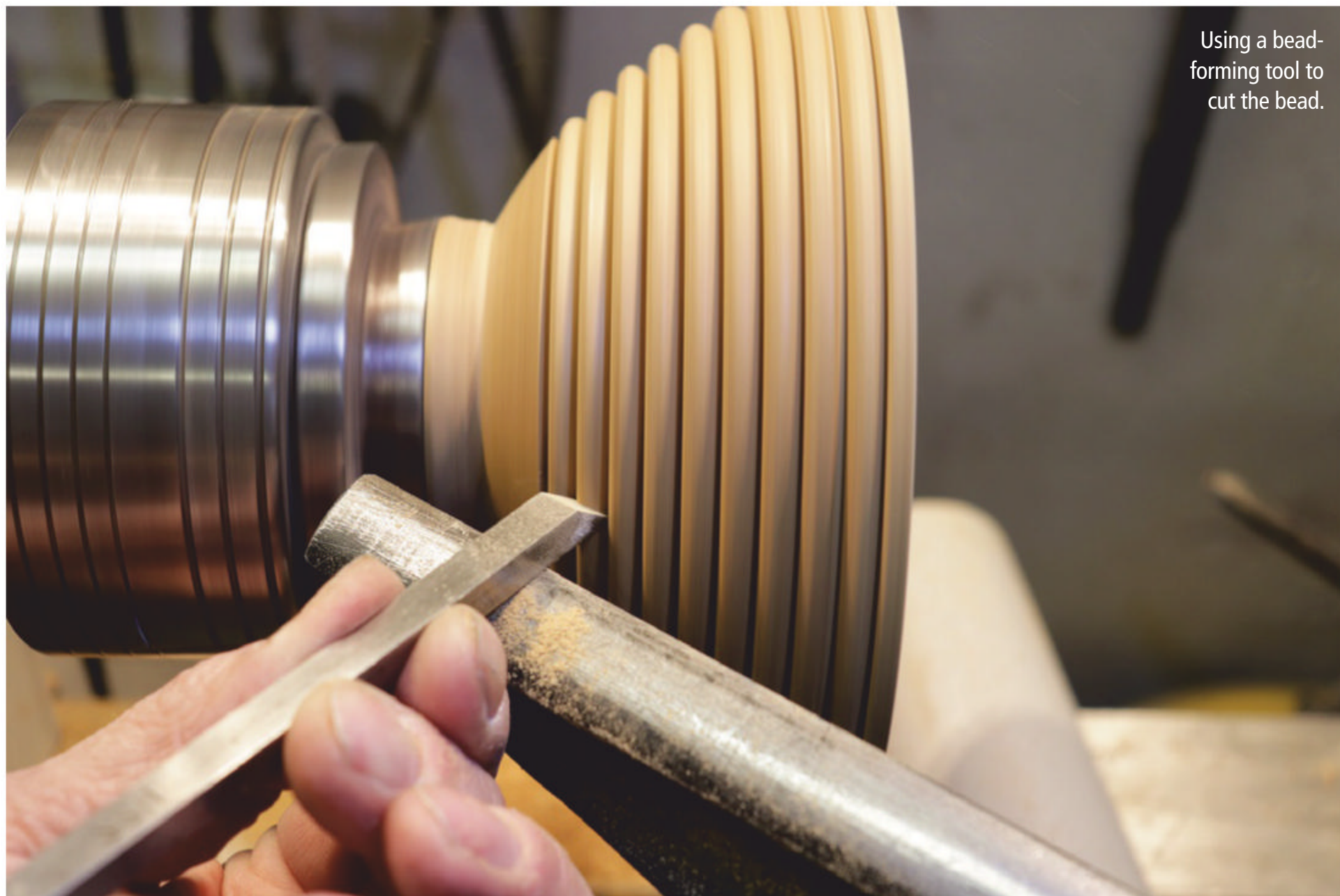
▲ Using the skew chisel to form a bead.

Turning beads and coves

Turning a bead with a spindle gouge or skew takes some practice. This article is not intended, neither has the scope, to cover the actual techniques of how to turn the beads and coves with both tools, but shows the various options available to us. The spindle gouge, as clarified, can be used to produce infinite sizes of beads while producing an excellent finish from the tool (bespoke bead forming tools are limited to just the one radius). We first mark the width of the bead needed – with practice this can be omitted – and then one side of the bead is cut followed by the other side, thus producing two halves of the bead. The downside of using a skew chisel to cut your beads is that one false move can ruin the day's work!

Producing a bead with a skew can be achieved by presenting it as a scraper. This is a safer technique when it comes to dig-ins. Use a freshly ground cutting edge with the tool placed on the toolrest with handle slightly higher and shaft tailing down in scraping mode. The toe/long point of the tool is then plunged gently into what will be the valley of the bead and gently swung around to shape one side of the bead, after which it is repeated on the other side to produce a full bead. Continual adjustment of the tool rest so that it is as close to the face being turned reduced the chance of the skew chisel chattering as it flexes. It is good practice to always have the smallest gap between the tool and the timber. It is possible that the tool itself could snap under load if the distance between the working surface and the fulcrum (tool rest) is too great.

Shaping beads with a bead-forming tool is probably the simplest way to achieve a uniform shape. Here the tool is set on the toolrest as per manufacturers' recommendations, which is normally, but not always, presented in scraping mode. But do check the instructions for your individual tool. With the tool presented in the desired position it is gently plunged to depth. If using a bead-forming tool, make sure it is sharp and plunge gently, especially when you are reaching the final/full shape of the bead as excess force at this stage can knock the crown of the bead off by tearing the fibres, as



Using a bead-forming tool to cut the bead.

seen in the lower left image on previous page. The bead shows tear-out, which has occurred at the end grain of the fibres within this cross-grain oriented bowl. For this reason, I think, scraping and profile/beading tools are more suited to the shaping of texture within end-grain bowls.

However, you can see that the beads to the right of the torn bead in the image at right have a finer surface finish and these were produced with the skew chisel in scraping mode. The lower right image shows the bowls produced for this article as well as a pure bowl without bead or cove turned texture, with all having their own beauty.

The examples of rim profile and turned texture are only a small sample of what can be achieved. There is a plethora of styles and ideas for you to experiment with, so do spend time researching ancient pottery, ceramics and the items around you to see how turned or moulded texture as been added.

Have fun turning and experimenting and remember to stay safe while turning. 



▲ Cut beads. One bead shows badly torn grain.



Finished bowls.

Rebuilding a Stanley No 52

A collectible in need of some missing parts.

The Stanley tool company built both the No 51 chute plane and the No 52 chute board from 1909 until 1943. That makes any Stanley No 51 or 52 at least 80 years old. The plane itself has No 51 cast into its body. The plane is designed to fit into a chute so that its offset blade can slice away end grain and produce perfect mitres or any angle between 90° and 5°. Cabinetmakers often made their own chute boards and hence only required to outlay the cash to buy the No 51 plane. However, Stanley



The refurbished Stanley No 52 ready for action.

also offered a kit that included the No 51 chute plane and a board (with No 52 cast into the chute).

In the dust-free days before disc sanders a chute (or more often "shoot") plane and board was king of the mitres and was mounted on a bench and used daily to tweak compound angle joinery.

CHANGING TIMES

The plane above sat on my bench before I retired as a woodwork teacher. It is actually a composite of a plane I picked up at a garage sale and a board that was rusting away in the workshop cupboard. As you can see there are components missing from the fence. The T-pin, hold-down clamp, locking bolt and machine screw are all missing. It is not surprising that components get lost over a span of 80 years. To get the fence to work I used a 3/8" Whitworth bolt as a pivot and another as a locking bolt.

After retiring from teaching, I



▲ The bolt stock necked and then turned down to 9.5mm diameter.



▲ Using the tailstock to support the 3/8" Whitworth die as it cuts the thread.



▲ The slot in the machine screw was cut with a hacksaw equipped with two blades.

dropped into the workshop to see how the workshop was going. To my surprise the shooting plane and board were in a cupboard and not on the teacher's bench.

After a conversation I realised that the tool was not appreciated or understood and was better off on my bench at home instead of collecting dust in a cupboard. These days shooting boards have been replaced with drop saws and disc sanders.

HANS BRUNNER TOOLS

Whenever I need to find out about an old tool, I go to the Hans Brunner Tools website (hansbrunnertools.com) and see what he has to say about it. The web page has three menu options - History, Dating and Buying. What I learnt directly was that most Stanley No 52 shooting planes (the misspelling of chute has become the standard) is that the frog is the weakest part of the plane and that you need to make sure that the frog is complete, not cracked, and is held in place with two bolts.

Hans also states that the T-pin and holddown clamps are often missing and that most Stanley No 52s on the market were once in school workshops. In my experience Hans is well informed and encyclopaedic in his observations and knowledge.

THE 1896 PATENT

The next step was to try and find the original patent for the No 52 board so

that I could turn and tap the missing components. This was when I realised that the patent was originally awarded to Justus A Traut and Edmund A Shade in 1896. Stanley Tools bought the patent and incorporated this clever tool into its extensive catalogue. The modus operandi of the Stanley Tool Company was to buy out any competing company and shut down competition. This business plan saw the strength of mass production create a near monopoly for Stanley.

Interestingly the company stripped its catalogue down to the bone in 1943 so it could convert its factory output to the manufacture of weapons for World War 2. After the war, electric tools started to dominate workshops, and the need for specialised tools like the No 51 and 52 waned.

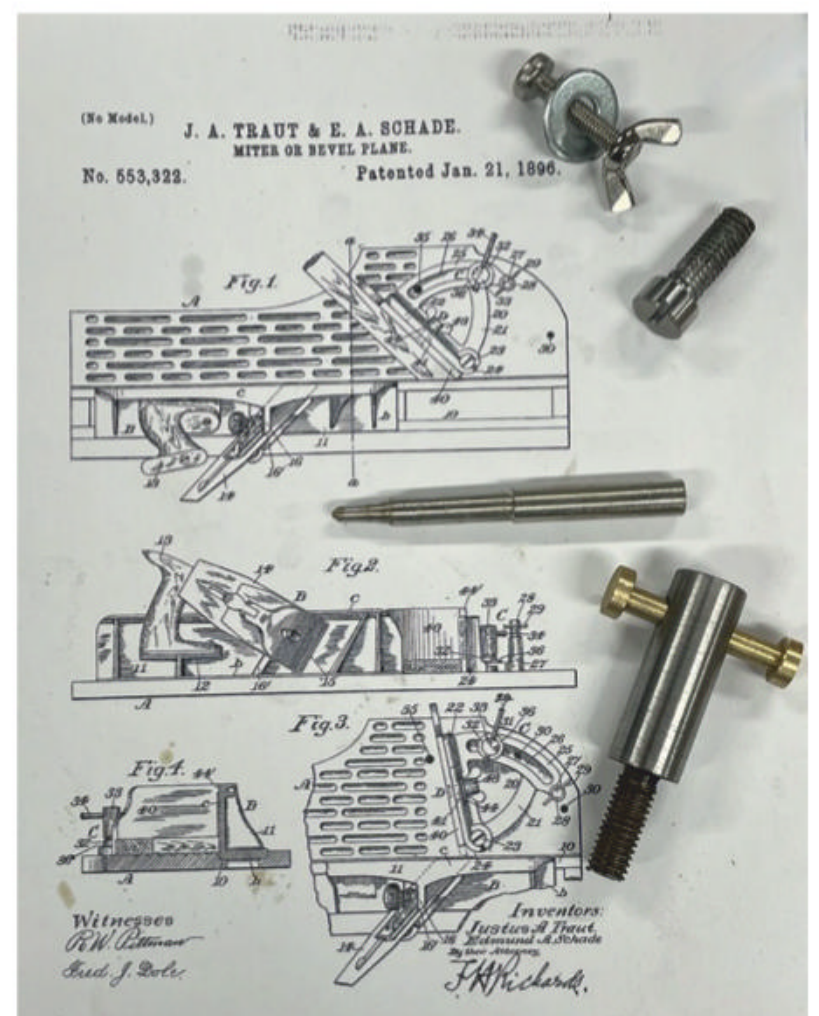
THE REBUILD

The first step in the rebuild was to strip both the plane and the board down to individual components. Each component was then deep cleaned and, if required, repainted with black epoxy.

It was while stripping back the shooting board that I noticed the 90° , 45°

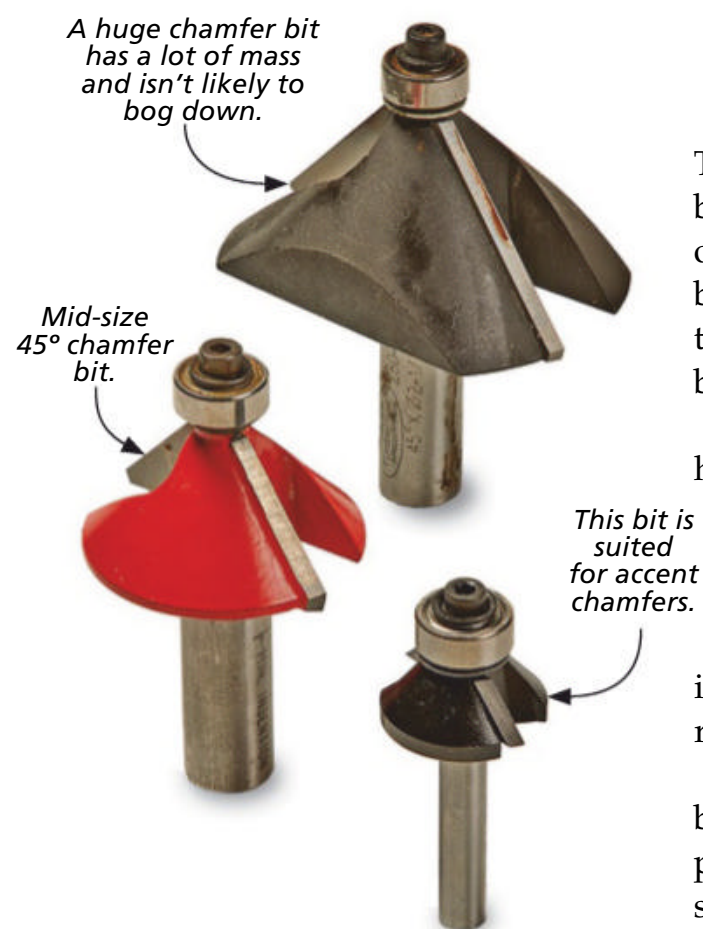
and 30° stamped into the plate next to the pin holes cast in the board. I also noticed an additional 3/8" Whitworth thread tapped at the end of the travel of the fence. This allows the fence to swing at all angles from 30° to parallel to the plane.

A couple of hours at the metal lathe had each new component built and the shooting plane working like a charm. 



▲ The 1896 patent drawing that was referred to when machining the missing parts of the chute board.

A New Angle on Chamfer Bits



▲ The standard 45° chamfer bit comes in a range of sizes. For simply easing an edge, I suggest getting a small bit first. Add a mid-size bit only as you need it.

The router bit I use the most: a chamfer bit is the one I think about the least. On one hand that's good because it means the bit does its job well. However, a little contemplation about your options can lead to better results in our projects.

45° IS A GIVEN. The chamfer bit you likely have cuts 45° profiles. The result is a balanced, light-catching facet. That's the reason I reach for a chamfer bit. That crisp glint transitions from one surface of a project to another. The drawings on the top of the next page show the range of functions that a chamfer fills.

THINK ABOUT SIZE. There's more going on behind that facet. As you can see in the photo at left, chamfer bits come in several sizes from tiny to supersized. The temptation is to believe that larger bits are more versatile and therefore the better value.

That's the reasoning I had in selecting a mid-size bit. However, I found that most of the time I was easing edges with small

chamfers. Most of the cutting edge was unused.

The cute little bit upfront caught my attention like a puppy at the pet store. It followed me home and practically lives in the collet of my palm router.

As for the other bit, it stands in reserve waiting for larger chamfering duties. But I also found it another role: joinery.

I like making small boxes with mitred corner joints. In workpieces that are 10mm thick or less, a chamfer bit cuts a clean, accurate mitre. And it's easier to set up than a table saw.

So what about that huge bit? I found it in the workshop router bit drawer. I'm not sure what project required that big of a bit. It's there for scale. So unless you're building bridges, it's not a bit you need.

A NEW ANGLE

On a recent dining table project, I wanted to ease the edge, but I wanted something

Chamfer Uses.

different than a standard 45° chamfer. With a little digging, I found chamfer bits in several other angles. (For sources of the bits shown here, refer to page 73.)

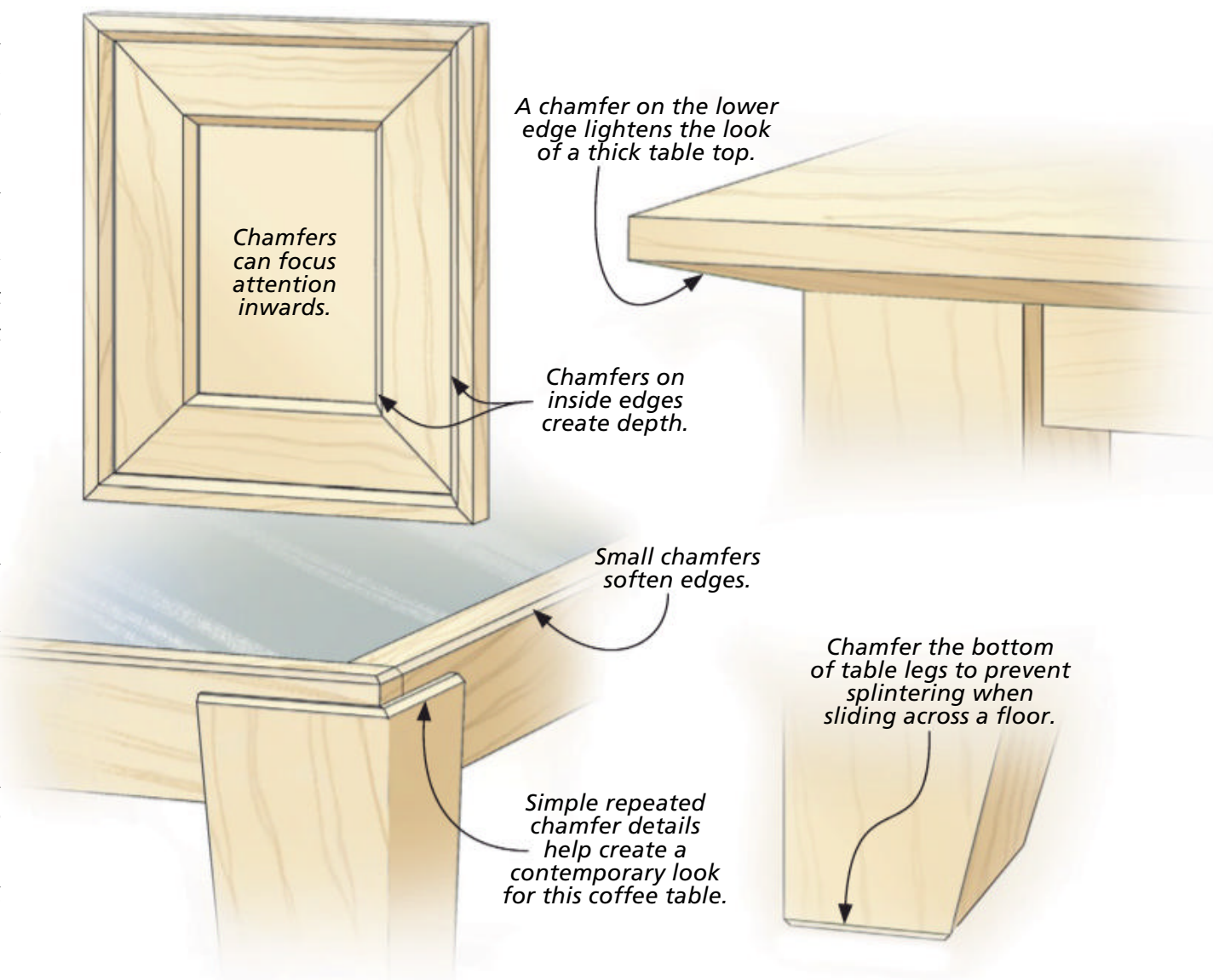
LAMINATE TRIMMER. The small bit shown below is designed for trimming plastic laminate flush with a surface and easing edges. You could just as easily use it to create a small 25° chamfer on project parts.

PICK AN ANGLE. The remaining three bits come from Infinity Cutting Tools, but you can find similar bits from other makers. The angles shown are 15°, 22.5° and 30°. The samples show how a subtle change in angle affects the look of the profile.

No, you don't need all of them. I suggest picking one to use as a contrast to a regular chamfer.

FLIP IT. One last thing. With non-standard chamfer bits, you really get two profiles in one. If you change the orientation of the workpiece in relation to the bit, you end up with its complementary angle. (Dig back to high school geometry for more.)

A chamfered edge plays nicely with a wide variety of design styles. And for such a simple detail, there's a lot of room to explore how to use a chamfer in the projects you build. **W**



Heading Screws

There are lots of reasons why screws are "headed". It looks good but also allows a boatbuilder to know where to position his screwdriver when he removes a plank.

Garan Hale won this year's WOOTHFA Furniture award with his magnificent Stella stool. The stool is gorgeous and really should be bought by the National Gallery and put on permanent exhibition. Other countries around the world exhibit furniture (The Hermitage in St Petersburg has a George Nakashima chair on display).

One thing that caught my eye when I was admiring the stool was the thought that Garan had put into "heading" his wedges. The wedges cut across the grain in the leg and then sit perpendicular to the grain of the carved seat. This means that the legs and the seat won't split as the wedges are driven home.



▲ Garan Hale "headed" the wedges on his magnificent Stella stool (see page 21) to avoid splitting the seat when the leg tenon expanded in its mortice.

Screws are usually "headed" when they are driven home to hold a hinge. This can be seen in the piano hinge below. The slots in the screws all line up with the pin of the hinge. This is a neat way to "tidy up" the installation of the screws and shows that the person who assembled the piano was careful as well as being thoughtful.

Heading large boatbuilding bronze screws is done for yet another reason. Sure enough they will look neat align-

ing with the planks, however boat screws are usually countersunk as well as countersunk in position. The counterbore will be plugged with solid timber or caulking; hence the alignment of the slots will be hidden. This is where the discipline of traditional boatbuilding kicks in.

A modern boatbuilder will presume that the plank he needs to remove and replace will have been screwed home with the screws "headed" in the direction of the plank. All he (or she) has to do is centre the blade of the screwdriver in line with the plank and in the middle of the caulking (or plug) and strike the screwdriver with a mallet. It will split the plug or caulking and land smack bang in the slot of the screw. The screw can then be turned counterclockwise and removed from the plank and the frame. When a replacement plank is screwed home, it too will have the screw slots headed so a future boatbuilder can remove the plank when need be.

Heading wedges and screws is done for lots of reasons. **W**





Letting Light Through

Robert Howard's updated Artists' Statement for his WOOTHA prize-winning lamp shade is so insightful we decided to print it in full.

Robert Howard is a Brisbane-based woodworker with a talent for carving and a passion for communicating the craft. Robert runs classes from his studio in South Brisbane (furniture making, turning, burning, instrument making as well as carving). If you go to his website (roberthoward.com.au) you can see examples of his awesome talent as well as a description of the courses he has on offer. No experience necessary: just an open mind ready to start a journey into the wonderful world of working with wood.

MALENY WOOD SHOW STATEMENT TO ACCOMPANY ENTRY

The first light I carved was made with Australian Red Cedar, and it taught me a very good lesson. A light like this is meant to be seen. Because the cedar did not allow any light to pass through it, it became essentially invisible at night. This produced the absurd situation where I needed a light to shine on the light.

The answer was to work with a wood that became translucent when it was thin. That is why I have chosen to work with Huon Pine.

To be translucent it has to be carved to

a thickness of less than 3mm (approx $\frac{1}{8}$ " in the old money). This has posed a considerable technical challenge, whereby the entire project could be ruined by one careless gouge cut.

Fitting in with the exhibition theme of Dovetails was theoretically easy, but again, technically difficult. It has also allowed me to use a technique that has long been used to allow furniture makers to use wood that would otherwise be unusable.

All wood shrinks as it dries, and while the amount of shrinkage is different in each direction (around the tree, across the tree, and in the length, or height of the tree), nevertheless figures exist for the shrinkage rates of each tree species.

This shrinkage causes problems because of these differences, and because the wood does not lose moisture at the same rate in all directions (moisture escapes most easily through the ends of boards or logs). These differences cause stresses to build up in the wood, resulting too often in the formation of cracks.

The losses of usable wood have been minimised in the production of boards, but boards are not the preferred mate-

rial for many carvers. They are simply not big enough. Larger blocks, however, face the problem of cracks to an advanced degree for many reasons, but in particular because of the very long time required to air dry such large volumes of material.

I have come to simply accept the fact that wood cracks, and have decided to live with it. I will either glue them up - fill them with epoxy if they are large - or use the method that was re-introduced to modern woodworkers by a Japanese American architect and furniture maker, George Nakashima: the butterfly, bow tie or double dovetail. You can see two of these used to stabilise a crack in this nightshade. Others have been glued.

Needless to say, fitting these on compound curved surfaces is not something to be attempted without a large quantity of patience.

I have also decided to incorporate an old fashioned method of height adjustment, using a couple of pulleys and a counterweight. A puzzle many might like to puzzle over is why the counterweight has to be twice as heavy as the light itself. **W**

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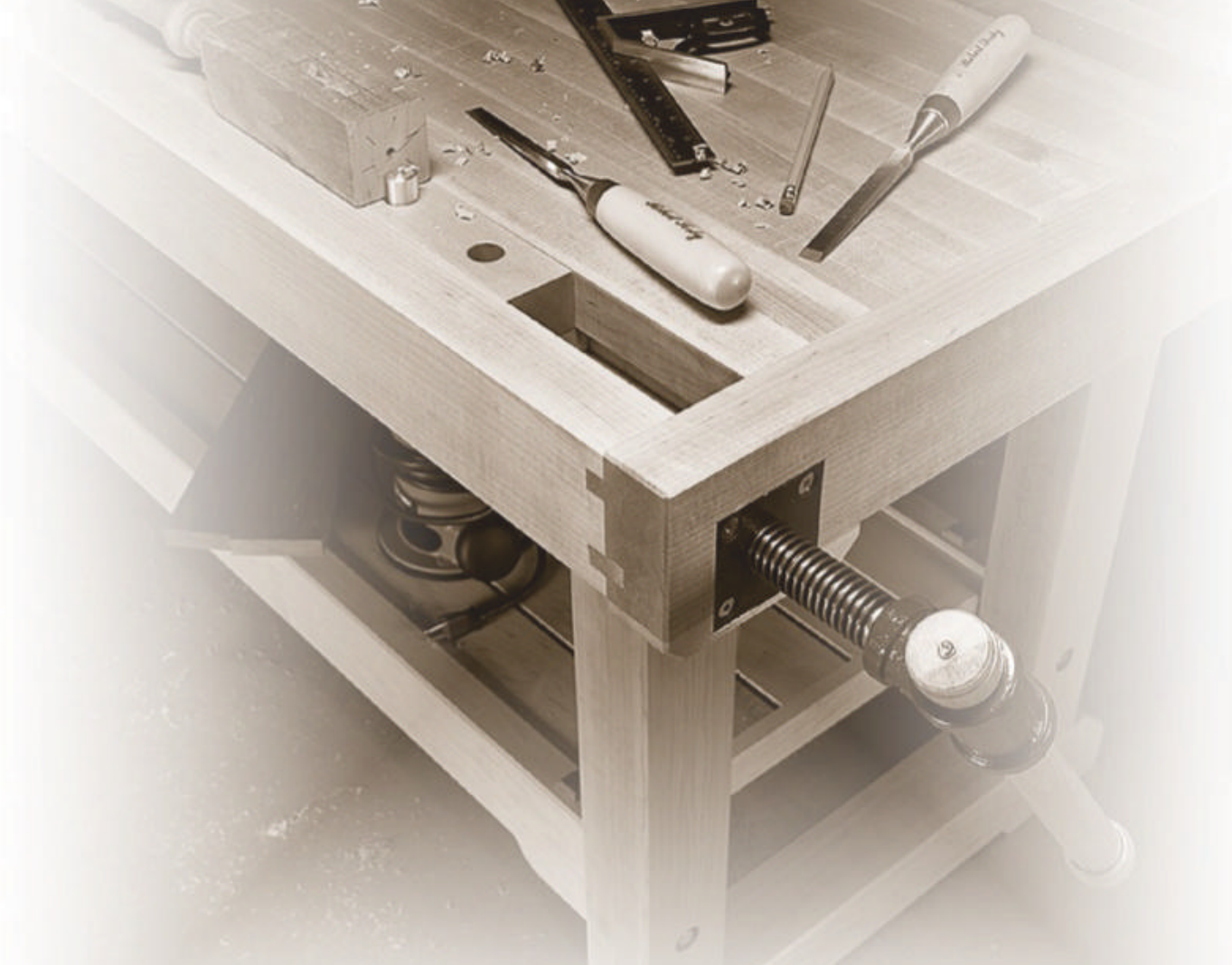
CHISA 7.0 CHISEL MORTISER

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SOURCES CONTACT DETAILS

Carbatec
carbatec.com.au
1800 658 111
WA: 1800 886 657
NZ: 0800 444 329
glue line bits

Carroll's Woodcraft Supplies
cwsonline.com.au
03 5243 0522
multi tip hollowing scraper

Japanese Tools Australia
japanesetools.com.au
02 9527 3870
books, pull saws

Lie-Nielsen Toolworks Australia
lie-nielsen.com.au
0418 842 974
dowel plate

McJing Tools
mcjing.com.au
02 9709 8805
inlay kits

Mon Petit Palais Designs
monpetitpalaisdesigns.au.com
0416 799 356
cabinet hardware

Porters Paints
porterspains.com
1800 656 664
chalk paint

Timbecon
timbecon.com.au
1300 880 996
glue line bits

Trend Timbers
trendtimbers.com.au
02 4577 5277
wetstone grinders

Vesper Tools Australia
vespertools.com.au
0400 062 656
sliding bevels

HARDWARE & SUPPLIES SOURCES

REVERSIBLE GLUE LINE BITS

Timbecon stocks the popular Freud Glue Line Profile Router Bit. Carbatec stocks two styles of glue line bits, a bargain basement Arden bit that will do the job and a premium CMT bit that will last for ages. The trick with using glue line bits is to clamp your boards firmly against the router table and fence so that any bow in the boards is ironed out as the edge runs past the cutter. This will mean the bow in the board will be completely removed when it is locked tight against its neighbour. Obviously, all edges need to be planed flush and true. It is only a bow that can be ironed out.

INSTALLING A PRE-HUNG DOOR

The clever Winbag inflatable wedge was purchased from Bunnings. A simple but very effective tool that can be adjusted with the tap of a foot. Traditionally two wedges would be used in concert, one opposing the other so they can slide over each other and lift the door to the correct height. The Winbag has the advantage of sitting still while being pumped, unlike wedges that have to be held still while being adjusted.

CASUAL COFFEE TABLE

Chalk paints are the perfect call when you want to create a distressed or weathered look on a piece of furniture. Porters Paints has a range of traditional chalk paints in pastel tones that you can check out on their website. You can achieve similar effects with water-based

vinyl paints, however for a truly traditional look a chalk paint will not disappoint.

SERPENTINE CHEST

A website worth visiting when looking for drawer pulls is Mon Petit Palais Designs. This Perth-based company specialises in cabinetry candy and stocks an amazing range of gorgeous knobs that will enhance any cabinet.

BOWL DESIGN

Bead cutting scrapers are available in 6, 9, 12 and 16mm widths. Carroll's Woodcraft Supplies carries a Robert Sorby two-ended high-speed tool steel cutter that screws into the multi-tip hollowing tool (RS200KT). The cutter comes in two sizes ¼" and ½" or ¾" and 5/8". The advantage that the interchangeable cutters have over a standard tool is ease of sharpening. All you need to do is hone the face of the cutter on a diamond stone and the edge is ready for action. Cutting beads with a beading tool is the way to go when turning a bowl.

A NEW ANGLE ON CHAMFERS

Chamfer bits are symmetrical and will cut perfect 45° angles that soften an edge and stop it from splintering. When you move into the world of bevel cutting bits you get the opportunity to cut a splay or bevel on the face or the side of an edge. Timbecon stocks Freud 15° and 45° chamfer moulding bits while Carbatec has a range of CMT 45°, 30°, 22.5° and 15° bits in stock.

Bandsaw Blade Tooth Count

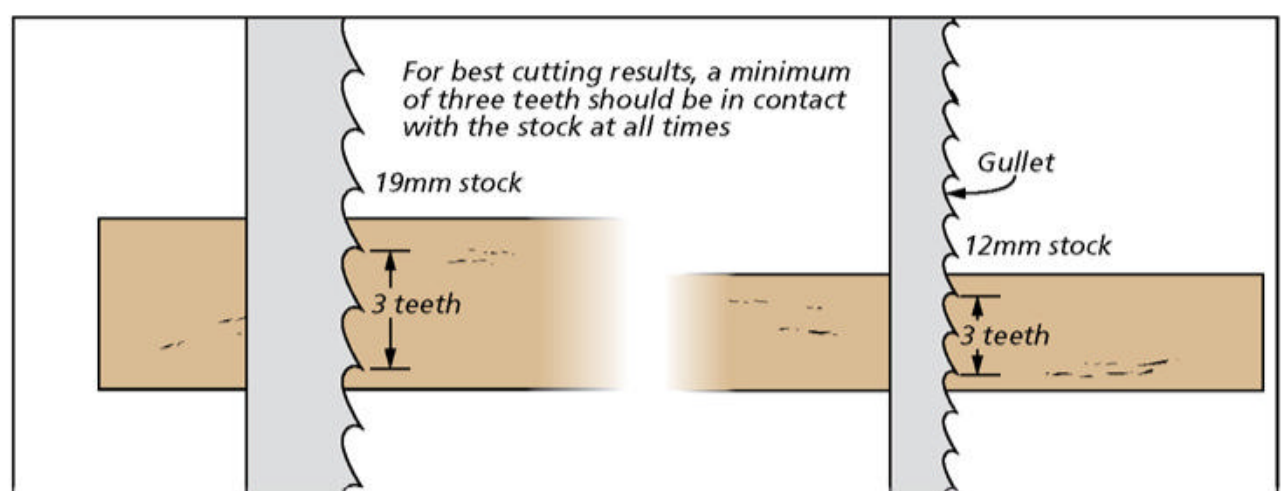
Bandsaw blades are made in 1/8", 3/8", and 1/2" widths. It seems they are still manufactured in English standard units. What I was wondering is what TPI do you recommend? *David Molnar*

TPI (teeth per inch) is one of three main considerations when choosing a bandsaw blade (along with blade width and tooth configuration). Fortunately, determining the best TPI for a given blade isn't really all that complicated. But there are a couple of points to be aware of.

The first rule of thumb is that the number of teeth per inch will be dictated somewhat by the thickness of the stock you're cutting. Let me explain.

MINIMUM NUMBER. In order to avoid damaging the teeth of a bandsaw blade, there should always be a minimum of three teeth in the stock. So for example, when cutting 19mm-thick stock, you want a blade with at least 4 TPI. For thinner stock, you'll need a blade with more teeth per inch. The drawings above illustrate this concept.

But this really is just a minimum. Depending on the task at hand, you may



want to use a blade with a higher TPI. Here, the key point to remember is that a blade with more teeth per inch will cut slower, but will also leave a smoother surface. So if you're cutting close to a line and don't want to have to do a lot of clean-up sanding, having more teeth is better than fewer.

On the other hand, if you're resawing wide stock, or sawing green wood, you

generally want the coarsest tooth count you can find (2 or 3 TPI). The larger gullets of the coarser blade will help remove sawdust more efficiently.

Keep in mind that these are just general rules, not precise formulas. Retailers typically stock only a few different TPI selections in each blade width, so you just have to choose the one that's closest to your intended use. **W**



▲ *Spliced Puzzle Joint.* John Bullar performs a woodwork miracle with this intriguing joint. All you need to know starts on page 30.

▲ *Serpentine Chest.* This flowing chest of drawers is a modern take on a traditional piece and catches the eye without showing off. Step-by-step instructions begin on page 42.

Final Details



▲ *Table Saw Cabinet.* Providing a home for blades, inserts and more, this cabinet is the perfect companion for your time at the table saw. Turn to page 52 to get started.



▲ *Exploring Bowl Design.* Mark Sanger gets into the detail of form and simple decorative effects. Turn to page 58 to find out more.



▲ *Casual Coffee Table.* The laid-back vibe of this table invites you to put your feet up and relax - or set up for the weekly game night. All you need to know begins on page 30.

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