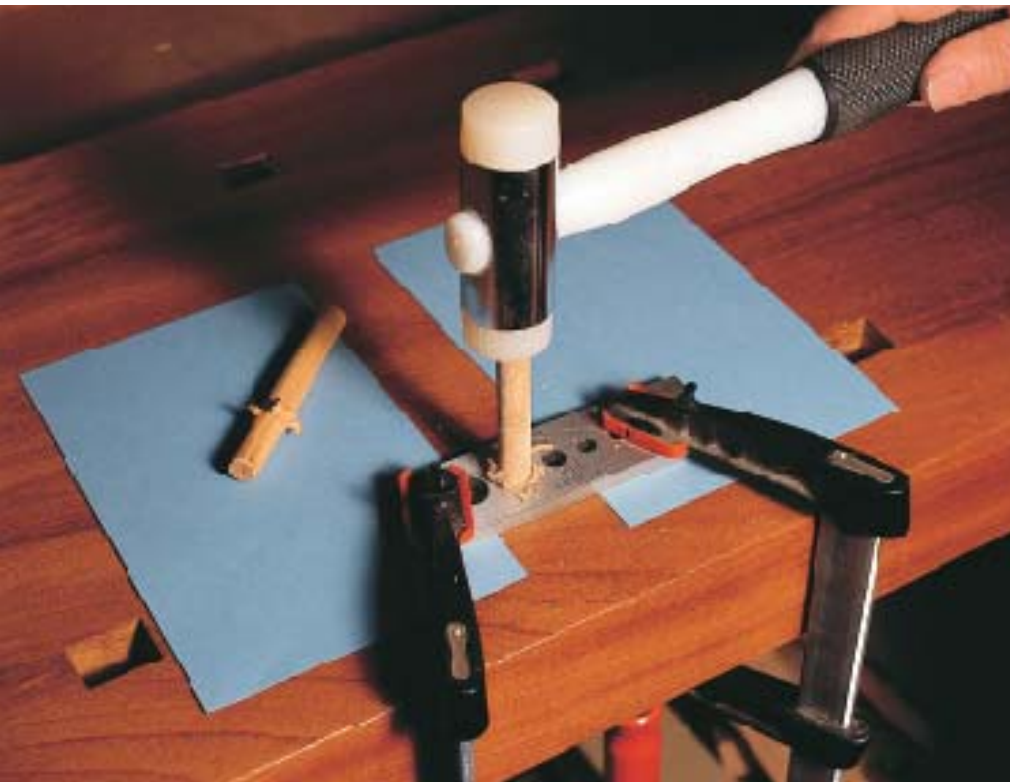


# Treasured offcuts



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home. He can be contacted on 01237 441288 or by email: davidcharl@aol.com or visit: [www.davidcharlesworth.co.uk](http://www.davidcharlesworth.co.uk)

**David Charlesworth** extols the virtues of making dowel plates to turn offcuts into hardwood pegs

**Knocking a blank through a plate with a nylon hammer**

do this on my table saw because the riving knife is a fraction lower than the top of the blade and the adjustable top guard is attached to the ceiling above, not mounted on the riving knife.

When the blanks have been rough-shaped it is helpful to taper the end which is going through the plate first. If small, a pencil sharpener might do, if large a chisel, knife or sanding disc will do the job.

Clamp the dowel plate above a dog hole in the bench, or screwed to a thick piece of timber with suitable, slightly oversized holes drilled. This helps to keep the dowel square as it is knocked through.

Tap the blanks through with a hammer, taking extreme care not to dent the top surface of the plate. The sharp edges of the hole are cutting surfaces and this is why I have shown a nylon mallet being used. Alternatively, knock the last

**W**hile talking to the Editor of *F&C* I wondered how many makers were familiar with a dowel plate. The main photo shows a particularly refined one made by Tom Lie-Nielsen in A2 steel. This is quite the most glamorous one I have ever seen and it is hardened to Rockwell 60-62c. Dowel plates are usually workshop-made, consisting of a piece of iron, obtained from a blacksmith, with drilled holes of various sizes in it.

In use, a roughly sized blank of hardwood is driven through the chosen hole. The sharp top edge of the plate shaves the blank to the exact size of the hole. We thus have the ability to make our own dowels in any suitable hardwood.

## Technique

It is important for both strength and a

clean finish, that the blanks are as straight-grained as possible. The best way of achieving this is to split or cleave them. They can of course be sawn but do avoid short or wavy grain. The plate gives best results if the blanks are whittled, planed or turned close to the intended size. The excess is scraped off by the sharp square edge of the plate so the finish is likely to be best when the least is being removed. I think that an octagonal section is the minimum requirement.

When making 12mm (½in) diameter, ash pegs, for the blind tenons in the back legs of some bench frames, I used a simple V-shaped cradle to plane the blanks close to size. To make the cradle I made a 45° ripping cut on the table saw and then flipped the stock end-for-end, before taking the second cut. Push sticks and guard are essential! I can only



Home-made dowel plate



Lie-Nielsen dowel plate, A2 alloy hardened to Rockwell 60-62c



Dowel blank being planed octagonal in V-shaped cradle



Cutting of excess with flush cut saw

◀ bit through with a slightly smaller dowel. Try to keep the peg square to the plate as you drive it through.

Short lengths are easier to drive through. My 12mm (1/2in) pegs were about 125mm (5in) long. Longer lengths will be difficult, though it might be possible to devise a clamping collar so that the section being driven through is still reasonably short. The collar would be tapped and then moved up to drive the next section.

### Perfect size

The finish on the dowel surface is not as good as a turned dowel, but the size is consistent and accurate, time after time. Some authors suggest that the dowels are compressed when passing through the

plate, but I haven't found this to be true.

### Sharpening

When making your own plate from a blacksmith's iron, the top surface is likely to be black and scaly. The drilled hole will not have a sharp edge until this rough surface has been filed and polished to a reasonable finish. This is done with progressively finer grit sharpening or slipstones in the manner used to flatten chisel and plane blade backs. The scary sharp method, using wet and dry paper could be used as an alternative. The Lie-Nielsen plate will benefit from sharpening after some use.

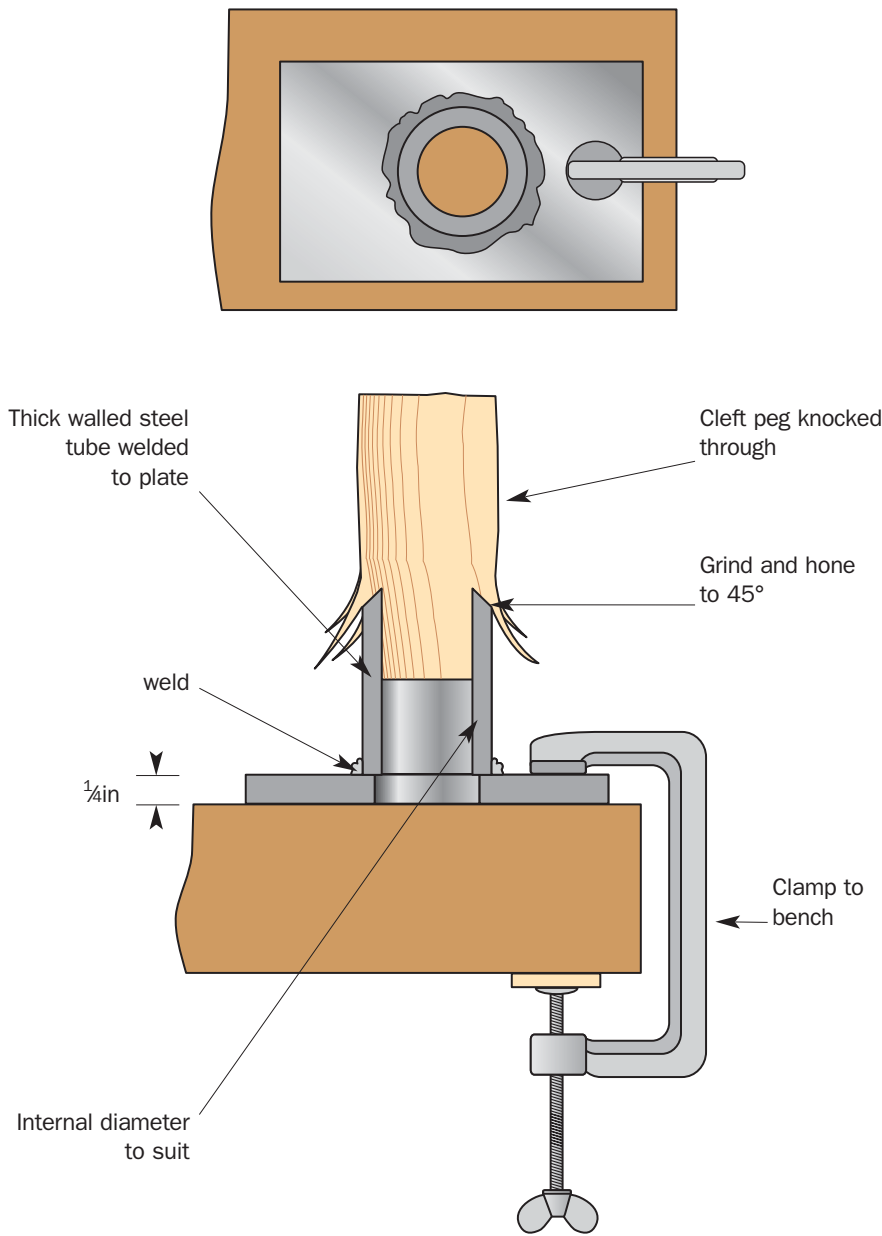
While researching this article on the internet I came across another method of

quickly producing dowel blanks. I do not know if it would produce a finished dowel. A thick-walled steel tube is bevelled and sharpened on its top edge at about 45°. The tube is welded to a thick plate base, which has an appropriate hole. The plate is clamped and then cleft blanks are driven through the sharpened tube with a crude wooden mallet kept for the job. The mallet is likely to sustain severe damage!

### Benefits

This method opens up unlimited choice of timber. Although some specialists supply hardwood dowel, the most commonly available is ramin. This is a somewhat featureless tropical species,

## Workshop-made peg-making device



which I believe is under threat. The section is often no longer round as the timber has shrunk or distorted since its manufacture and it may not make a snug fit in the intended hole.

If we make our own, they will fit and we can introduce interesting colour contrast to our designs. I decided to try some harder exotics, such as ebony, African blackwood and rosewood as I had not seen these timbers referred to before. I was delighted to get an acceptable result. Traditionally, oak, ash, maple and walnut were used.

Use dowel plates to check and adjust the size of commercial dowels. My friends Terry and Malcolm of Sawle & Vaughan like to do their dry glue-ups

with slightly reduced diameter dowels as it is easier to disassemble the job. They also like to check dowels before a glue-up to see that there is not an oversized one to create havoc during gluing.

Restorers may need non-standard sizes. John Lloyd tells me that when Victorian chairs are repaired they often find non-standard dowel diameters – something you can replicate by using a home-made plate.

### My bench frame

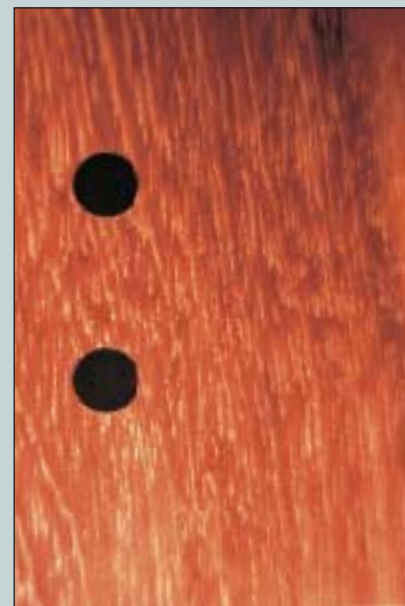
Benches I've made recently have had a straight back leg with heavy short rails blind morticed into them. The material is usually iroko – one of the few stable timbers available in 100mm (4in)



Bevelling the peg so that it will not split while being planed

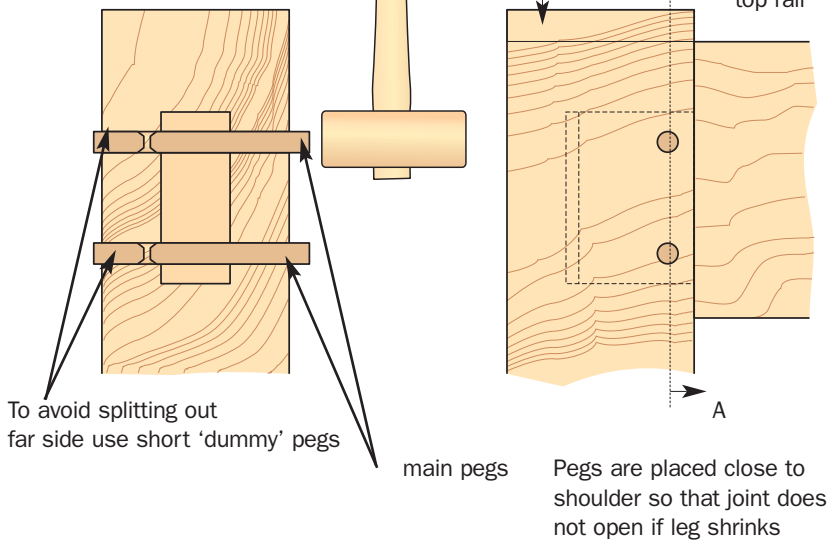


Yew pegs in Pau Rosa. Note that the growth rings are lined up neatly

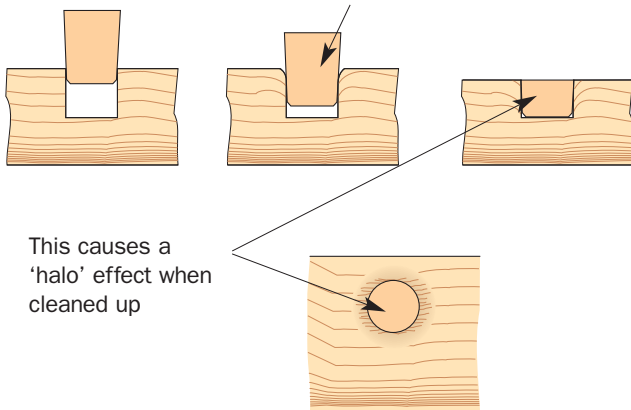


6mm (1/4in) ebony pegs in Pau Rosa

## Pegging a leg to a rail Section through AA



In softer woods a plug or peg which is too tight drags the surface fibres down when tapped in



thickness. In the dim and distant past I did a glue-up and on removal of the sash clamps one of the joints 'popped' loose. I was unable to determine the cause as the other joint was well glued. It could have been a badly fitted tenon, or glue failure due to the greasy nature of the iroko. Anyway the solution was to cramp the frame tightly and install two 12mm (1/2in) ash pegs. I've done this ever since, as an insurance policy!

Here is my method. If a long peg is driven right through it might split out the surface grain on the far side. Pegs driven into blind holes would need substantial saw kerfs in the length of the peg to allow air and excess glue to escape. So the final plan was to drive the long peg most of the way through and insert a short 'dummy' into the far end of the hole.

When drilling, I find a sharp lip and

spur drill, used in a drill press, gives a clean splinter-free hole.

When cleaning up, take care over sawing off and flushing down the protruding dowels. Careless sawing, which marks the surface of the leg, will need much planing to remove the marks. I like to drop a sheet of card (with a hole) over the peg so that we have some warning before the surface is marked. There is a remarkable Japanese flush-cut saw which has a flexible blade and no set on its teeth. This is flexed slightly so that the blade is lying on the leg surface while the handle is angled clear. This is a wooden nail saw, Kugihiki Noko Giri, which came from the *Japan Woodworker* and is also available from Rudolf Dick and Axminster Power Tool Co. It works on the pull stroke and saws the peg flush, with no marking of the leg surface. If you have not had some practice

it is still wise to use a thin sheet of card or paper as protection. My saw came with instructions that the depth of cut should not exceed 10mm (3/8in). It is designed for more delicate pegs. However I find that it will saw halfway through from either side. Veritas has a small saw which has set on one side only. My saw, from The Tool Shop, is exceptionally delicate and did a good job on my small ebony pegs, though it does have a slight set.

When chiselling and planing, if a millimetre or two of peg is still protruding it is wise to bevel it from several directions with a chisel used upside-down – that is, bevel down. Use card under the bevel so that it does not bruise the surface. Some country furniture-makers leave the tops of their pegs, which may be square, slightly proud and faceted. My concern is that the far edge is not split out with the split running below the surface. Once bevelled, you can plane with confidence. One final tip; a low-angle block plane is just the tool for planing the end grain of the peg, but it may well cause horrible tearout if your surface timber has interlocked or difficult grain. Remember to revert to something with a suitable effective pitch as you start to cut the surface.

## Results

It is surprisingly difficult to achieve a clean, crisp well-fitting result. Too tight a peg will drag the surface grain of the perimeter of the hole downwards and cause a strange 'halo' effect. Did you remember to try and orientate the growth rings of the peg in a pleasing direction? Sometimes the peg will spiral out of alignment as you drive it in and there is nothing you can do about it!

## Verdict

We saved a great deal of time on the bench frames by using the Lie-Nielsen dowel plate and it worked extremely well. I usually turn the dowels on my Myford Super Seven and it is a slow process. If you want to make custom pegs the dowel plate is a very useful tool. The ability to choose any timber for your pegs opens up interesting colour possibilities.

## Facts & figures

The price of the Lie-Nielsen dowel plate will be \$45.00. At present it is only available direct. Visit the website: [www.lie-nielsen.com](http://www.lie-nielsen.com) or phone 001 800 327 2520. Other Lie Nielsen products are available from Axminster Power Tool Centre, tel: 0800 371822, and Tilgear, tel: 01707 873434.