Terrace fencing

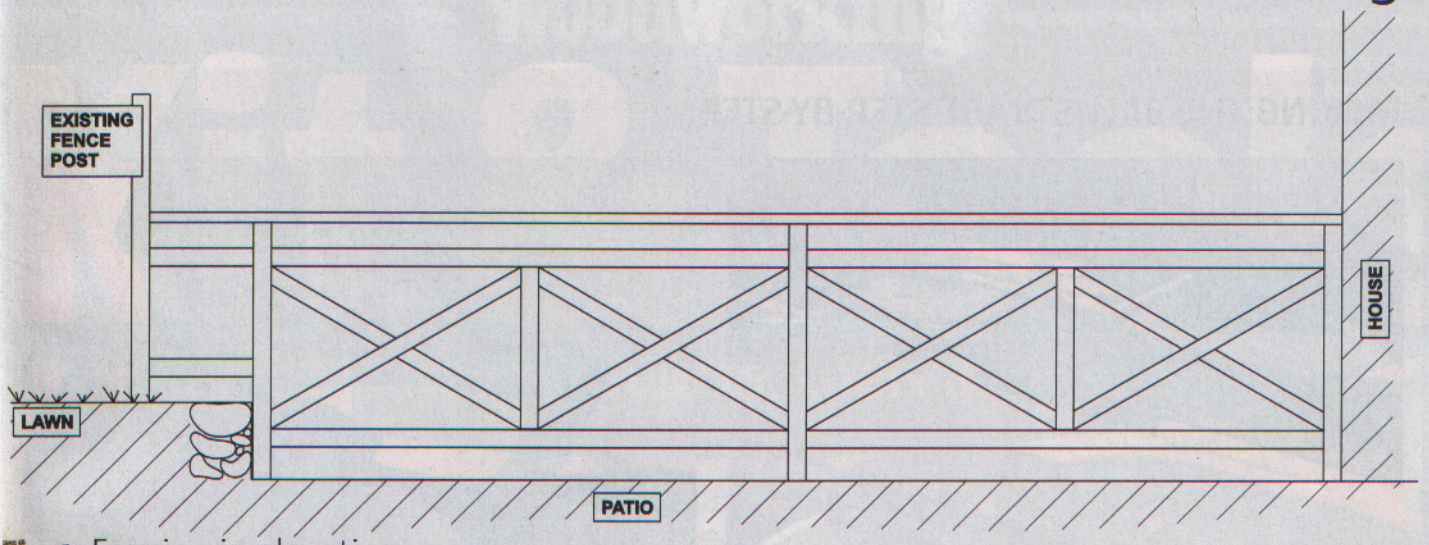

Fig.1 Fencing in elevation

Our house is built into a hillside. Originally it was just dug into the hill so that the ground at the back came within a metre of the roof, but with much digging we've created a terrace at the back which is a little lower than my study floor, hence the French windows and shutters. On a nice day I can escape from work straight out the back. The terrace is longer than that part of the house though and still quite high. One false step and you would fall a couple of metres into the backyard – a fence was essential.

I looked at a lot of fences. Mass-produced ones come in panels with fixed widths, but the length of our terrace was fixed by several immovable features and nothing would fit without substantial work. We could have used the sort of balustrade system you see around many wooden decks, or internal stairs for that matter, but they would look out of place. So back to the drawing board, or in my case the CAD system.

Designing

I'm not giving detailed drawings and cutting lists, but I hope by explaining the design process and the basic construction technique you will be encouraged to design your own to suit your situation. Much as I admire old joinery and carpentry techniques I don't use them myself. They belong to particular times and places, and were constantly evolving. Medieval, Renaissance and Georgian woodwork don't have much in common, so why try to ape one or the other? We don't have access to the same timbers, but we do have superior adhesives, so let's use what we have.

Like many of my designs this uses layers of thin timber to create complex pieces and avoid traditional joint cutting, but I'm not pedantic about it, it also uses dowel joints and cross-halvings.

The starting point is a scale drawing of the problem. In my case the fixed points are the house, the terrace itself (which slopes slightly for drainage) and a small wall topped by a fence. Drawing a line representing the position of the top rail, I wanted something sturdy to lean on while daydreaming, so it's a metre high. Waist height is comfortable for leaning on, less than hip height is too easy to fall over.

If you have young children around you need to consider the size of gaps in the design. Small children can squeeze their bodies through tiny gaps, as little as 100mm, but then get their heads stuck! I wanted something with a more open appearance and as we don't have youngsters it's not really a problem, visitors will have to keep an eye on their offspring.

With the outline fixed, sketch in some alternatives. The advantage of using a drawing application on a computer is you can generate dozens of designs quickly, but if you are happy with paper and pencil, fine. My balustrade is just over 4m long, so I soon came to the decision that I wanted one central post – obviously this is one thing you have to adjust to suit your situation. After playing around with horizontal rails, vertical palings and assorted diagonals I decided on the crossed design shown, with a short vertical in the middle of each section.

▲ Fixing to the wall by 200mm screws...

▲ ...while the other end fixes to an existing post

Materials and techniques

Garden fences are generally made with sawn timber, but that's not suitable for my lamination technique and I wanted a smooth 'balustrade' not a rough fence, so I used PAR. The timber is nominally 4 x 1in but is actually 68 x 19mm. The main posts are made from three layers, the middle one designed to allow the rails to pass through, the crosses to slot in either side and a piece to protrude from the top to form a tenon onto which the hand rail fits. The hand rail itself is made from 3 x 2in, which is actually 68 x 40mm.

The timber was delivered in 4.1m lengths allowing the lower rail to be a single piece, the upper one is longer though and joined in the middle, as is the handrail.

I halved the crossed, dowelling them to the short uprights, which I dowelled to the rails. A proper dowelling jig would be useful, but I managed with a piece of steel angle and a G-cramp. I glued all the joints with Evostik Weatherproof PVA adhesive.

The posts are secured to the concrete terrace with simple brackets. At the house end it is also attached with a 200mm screw into a large plastic plug, the other end attached to an existing fence post. The middle post really needs a more rigid bracket – I'm waiting for a blacksmith to make me one.

The balustrade was finished with timber preservative, two coats of primer/undercoat then one of gloss, prior to erecting it since painting the outside would have been tricky otherwise. The hand rail was painted prior to final fitting to avoid dripping blue paint onto the white parts.

It turned out pretty much as expected and makes coffee on the terrace a much less nerve-wracking affair!