The wooden pyramid would subsequently be inverted to use as a hopper

The pan clamp and pot support was made from domestic copper tube

So far so good, but then I realised that I would need to counteract not just the weight of the stove, but also the weight of any pan with food cooking in it, and I would need to design a pan clamp to hold that pan safely (more weight to counteract). It was at this point that I was deployed as a reservist chaplain to the South Atlantic and South Georgia with the Royal Navy. On the first evening aboard ship I sketched out my range and consulted the young officers in the wardroom mess: what shape would a counterweight need to be to operate in a confined space? They agreed that I needed an inverted pyramid, or possibly a hemisphere. Thank you, gentlemen of HMS *Clyde*!

This deployment proved useful for the project in another way. On South Georgia I picked the brains of Steve, one of the scientists of the British Antarctic Survey, about using Primus stoves safely – particularly how to avoid CO emissions. BAS has redesigned its stoves to ensure a 30mm gap between the top of the burner and the pan, and Steve told me that they have beaten the bottom of their pans into concave domes to increase the airflow and prevent condensation dripping directly into the flame. However, no stove is used without a CO monitor. This is life-saving advice.

On my return to the UK the stove project was restarted. I tried to cast a pyramid of the right size from concrete, failed, and then reasoned that it would be better to make a wooden hopper into which I could add ballast weight as I needed it. Building a wooden pyramid tested my knowledge of practical geometry to the full, as each face needed its edges chamfered to the correct angle to fit snugly. I would have been lost without a circular saw to cut the angles and chamfers accurately. The pyramid was then inverted as a hopper and fixed inside the bottom of the stove box.

Retro and industrial

The range is made of wood, but I wanted it to look metallic and slightly retro and industrial, so I painted it with Hammerite green and copper paints. Once the paint job was complete it was time to fabricate the pan clamp and the pot support. I made this out of 15mm domestic copper tube, with adapted fittings. I cut a slot along the long side of four tee-fittings and levered the copper out to allow a comfortable but not too tight grip for the pan clamps on the piping surround. These move, so they are not soldered. The pan support rests, for the moment, on four adjustable pipe clips, usually used to attach pipe to uneven walls. These I can adjust to create the 30mm gap that I need above the burner of the Primus. The fittings probably need some adaptation in the future, but they work for now.

Commissioning the stove meant installing a CO monitor, cutting the four short axles, filling the hopper with pebbles and boiling the first kettleful of water. The range swings freely on both axes, and the weighted hopper provides all the counterweight that I need. If the pebbles become spotted with fat from my frying pan, the top layer of them can always be replaced. They give the range a pleasing quirkiness which makes up for the fact that from the front the hopper (my pride and joy) is largely hidden.

GETTING IN TRIM

I did not like the 'boy racer' appearance of the trim that accompanied the car stereo speakers I bought for use in my boat, so I made an oak trim to match the boat's woodwork. I had access to a lathe which allowed me to create a recess, but a basic jigsaw could be used to easily construct this item, with a second ring providing a spacer to capture the mesh front.

Henry Lupton, by email

THE RUNG READING IS RIGHT

The tidal ladder complete with cable ties

I keep my boat on a tidal mooring, accessible by a ladder from a quay, so planning to get out and come back is dependent on there being sufficient water. After installing a new depth sounder, I needed to calibrate it. Fortunately, the rungs of the ladder are 25cm apart and, serendipitously, I installed the ladder so that the bottom rung was 25cm from the mud. It was easy to mark off the 1, 2 and 3m depths with uncut cable ties. Then it struck me that I can calculate the depth of water expected by calibrating my depth at any given time to that of Northney (just two miles away). If I am away and want live depth readings to see when I can safely plan my passage home, then I calibrate my depth against Chimet (www.chimet.co.uk) for Springs and Neaps plus the rise and fall of the tide. To do this I use my mobile phone for the internet data while doing jobs on the boat.

Gilbert Park
By email