

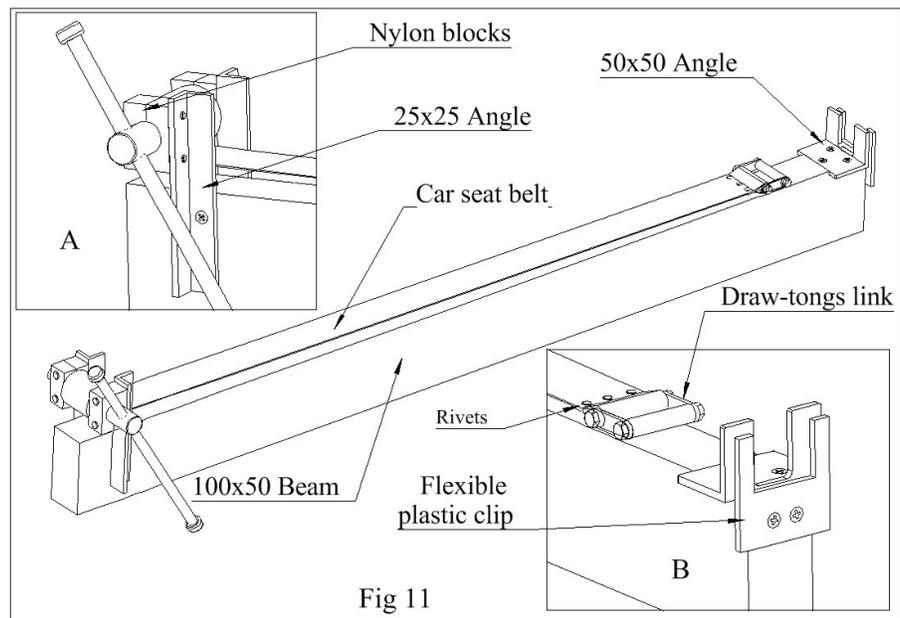
Making a draw-bench

Draw-benches are expensive items to buy and some are capable of drawing wire up to 10mm diameter, but it is neither difficult nor expensive to make a serviceable one capable of 5mm diameter. No great precision is needed, and the only materials required are likely to be found without any trouble. For the bench itself you'll need a piece of 100x50mm timber of a length appropriate to your needs: 1300mm would probably be adequate. The length of the beam determines the maximum length you can draw. You will also need short lengths of 50x50mm angle iron and a winch. If you have a geared winch then there is not a lot of work required, otherwise you'll

have to make do

with a compromise. **Fig 11** shows a schematic of such a bench with a homemade winch, for which you will also need short lengths of 25x25mm angle.

11-A shows the simple strap winch that utilizes a car seat-belt strap, and **11-B** shows the draw-plate bracket and plastic clip to retain it. There is nothing special about the clip; it's



only purpose is to stop the draw-plate from falling off the bench when the wire leaves it. No real dimensions are given because you can use whatever materials are at hand: the 100x50 beam and the 25x25 and 50x50 angle irons are simply suggestions. I chose 100x50 because the old seat-belt I had was 50mm wide. The length of the 25x25 angle iron brackets is determined by the diameter and centre height of the winch spindle above the beam, and this is determined by the length and thickness of the seat-belt strap. The length I chose was 1300mm (about 50"), and since its thickness was measured at 1.1mm, its total cross-sectional area was $1300 \times 1.1 = 1430 \text{mm}^2$. The spindle diameter chosen was 12mm, the cross-sectional area being $\pi \times 6^2 = 113.1 \text{mm}^2$. When the strap is fully wound up on the spindle, the total cross-sectional area is then $1430 + 113.1 = 1543.1 \text{mm}^2$, which corresponds to a circle of radius R where $\pi R^2 = 1543.1$, so $R = 22.16 \text{mm}$. I reckoned a 45mm centre height would cater for all future needs.

Fig 12 gives some details of the winch and the draw-tongs link. The nylon blocks are in two parts that are bolted together to act as bearings for the spindle. They are made by trapping a sheet of thin card between them before boring to a nice fit in the spindle. For the draw-tongs link I again chose 12mm steel rod.

