

This entire file is from Paul Womack (otherwise known as BugBear)



How to make a bow saw (notes to accompany the drawings and photo)

Introduction

This is not a design. It a reverse-engineering exercise on a bow-saw I bought recently. I bought it because I thought the shape was elegant, and hope you think so too.

Despite the age of the saw, the measurements were made in millimetres, because I find them easier to measure and manipulate (and it's what my calipers are calibrated in). I've mentioned where I think an original measurement was a round figure in inches.

Lumber

The essence of the saw is 2 uprights and a cross piece. In this saw all these pieces are 19mm thick stock (I imagine it was originally 3/4 nominal).

To make the saw I recommend preparing the stock as planed and thickened lumber. The end pieces are 368mm long by 36 mm wide, while the cross piece is 392.5 mm long (including tenons) by 25mm wide (probably 1 inch).

Joints

The tenons on the cross piece run the full 25mm width, and are 6mm thick. The mortises are chopped 14mm into the end-pieces.

The centres for the holes for the blade holding rod are 25mm from the extremes of the end-pieces. My rods were 8mm diameter (5/16 inch) but drill to match whatever rods you've chosen (see blade holders, below).

All of this work is much easier while the stock is rectilinear. At this point you have the world's least elegant bow saw.

Shaping

You will note from the ghostly outline of the original 36mm stock that the sweeping curves of the end-pieces do not quite exploit the full width of timber. Having thought about this, I believe that the rough outline was sawn, and then what a boatbuilder would call "fairing cuts" taken, resulting in a slight shortfall from the full width. I see no reason to do otherwise. The rounded section of the curved cuts was presumably done with a spokeshave.

The end piece taper in thickness towards the tensioning string. Measuring the saw, there is a complex curved taper between the 18mm thickness and the 19mm curved thickness, before the simple, linear, taper down to 10.7 mm at the tip. I have not taken detailed measurements of the complex taper; I believe the linear taper was cut starting at the point labelled "taper break" on the drawings. When this had been planed, a few fairing cuts smoothed out the arris where the flat and taper planes met.

My saw has a plain rectangular cross-piece, but I have admired other saws with fine stop-chamfering on the cross piece.

Handles

I have provided accurate measured drawings of the handles from my saw. However, handles are about comfort. If you have other tools with handles that fit you well, feel free to copy them. If you have no lathe a common substitute in the old days were chisel handles. I have seen a very fine looking bow saw using best box-wood London octagonal pattern chisel handles.

Blade holders

The blade is positioned in a slot in a brass rod, and held in place by a cross pin. There are a coupla ways to hold the rod in the handle. The easy way is a good quantity of your favourite epoxy (or thick CA). You may drill and cross pin if you like the idea of more security. If you want even more security, use ferruled handles, and put the cross pin through the ferrule. Most saws that I've seen have a washer between the handle and the end-pieces. In my saw the "washer" is one piece with the rod! Somebody turned a length of 1/2 brass rod down to 5/16 - overkill IMHO.

I will leave the design of the string and paddle to the end-user...

BugBear (bugbear@mediabridge.net)



