



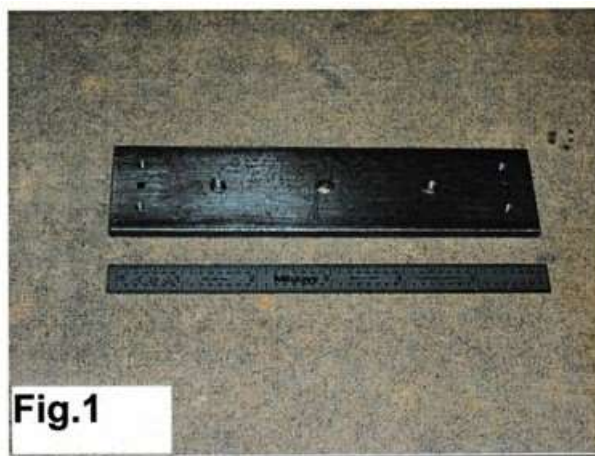
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One man and his brake blocks

This document was written by Andrew Becker and was originally published by The Colchester Society of Model and Experimental Engineers in July 2010

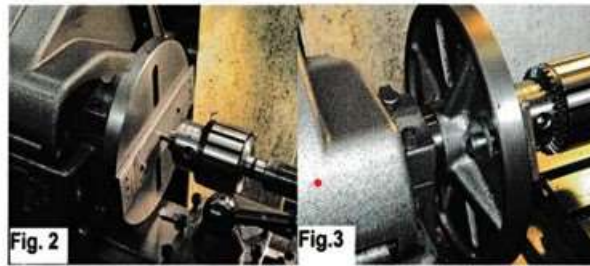
I needed to make some brake blocks for the Simplex locomotive that I am building. There are no brakes shown on the Martin Evans drawings! So! like other Simplex builders I was left to my own devices. I thought 'Link' readers might be interested in how I machined the inner brake faces. Hopefully the photographs will help show what is lost in words.

I wanted to use the materials that I had available, mild steel and avoid the cost and delay of acquiring a cast ring of brake blocks. The question was what to do and how to do it? The main problem was how to hold individual blocks in the right position to turn the inner radius and taper to match the wheels that had already been made? I chose the alternative detailed here. I chose to mount the prepared blank blocks in pairs on a separate plate that could be secured to the face plate on my Myford ML10 in the correct position, rather than struggle with trying to fix blocks directly the faceplate with umpteen clamps and screws that have the potential to fly off in use!



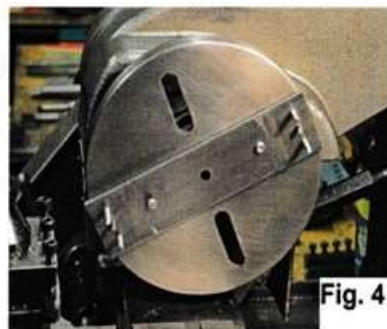
Making the Mounting Bar

I used a piece of 1x1/4 x 6" bright mild steel bar as a mounting bar (fig.1). The datum (axle centre) position was positioned in the middle of the bar where a 'Y1' reamed hole was made. From this datum the position of the three fixings points for each of the two blocks, consisting of a central hole reamed hole for a locating dowel Fig 1 and two 4BA tapped hole per block were made. (The important point here is the reamed hole for the dowels that drives and maintains the rigidity and position of each block.) The blocks are clamped to the bar with 4BA studs and nuts. At the same time two M6 (1/4" BSF) fixing holes were drilled and tapped on the centre line either side of the 1/4" datum (axle centre) to secure the mounting bar to the face plate.



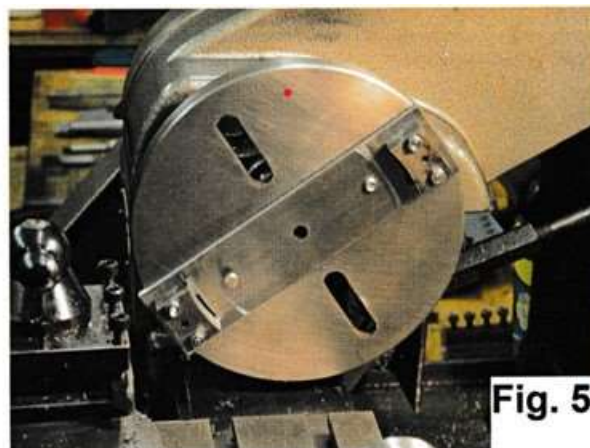
Positioning of the Mounting Bar

The mounting bar is aligned on a $\frac{1}{4}$ " dowel held in the tailstock chuck, thus maintaining alignment with the lathe centre-line (fig.2). The mounting plate was then fastened to the face plate from the headstock side with a pair of M6 ($\frac{1}{4}$ " BSF) screws and heavy washers (fig.3).



Preparing and Fixing the Brake Blocks

The blank blocks were prepared with a matching $\frac{1}{4}$ " reamed dowel hole and two clearance holes for the 4BA studs (fig.4). The prepared brake blocks are located on the dowels and secured with 4BA studs and nuts. M6 ($\frac{1}{4}$ " BSF)



Machining the Brake Face

The $\frac{1}{4}$ " alignment dowel was offered up to the datum (axle centre) for one last check to ensure that nothing had moved. Machining then commenced at my lowest machining speed, initially with 0.010" roughing cuts, reducing to 0.005" and finishing cuts of 0.002" to match the minimum tread diameter of the wheel (fig.5). The final taper was then applied using the compound slide set to suit my wheel taper applying 0.002" finishing cuts. I was relieved to see the brake faces matched the taper on the wheels.



Fig.6 shows an original blank next to a radiused brake block; incidentally the blocks were machined from thicker stock and are to be further machined. The extra thickness prevents the turning tool from striking the mounting bar whilst machining, although if you look closely I did catch the bar once on the first pair of blocks.