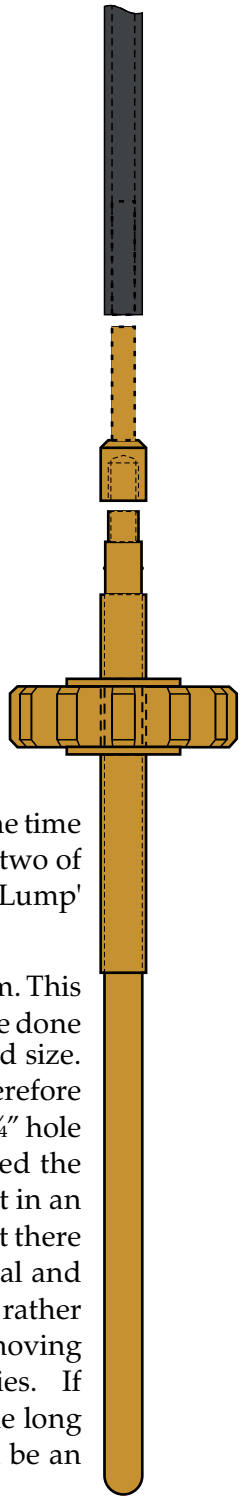
4th Oct

I can't explain why it has taken me so long to appreciate that using the surface of the work as [Z = 0] is by far the easiest option. Up to now I've been using a stepped block with 10, 11, 12 ----> to 20mm to set the cutter position and that has meant that when setting the parameters in CamBam I've had to work out the target depth allowing for the clearance above the surface - see Fig-35 in WIP-7B.

A chance remark by an experienced CamBam user (on another Forum) and the issues I was having with the depth of the centre joint on the Frame [B] component made me re-think the whole methodology. This meant that I had to re-visit CanBam to modify the [Surface] and [Target Depth] parameters for all the MOPs but that's a small price to pay for the greater convenience afforded.

I was having some problems with skimming the surface because the blanks came directly off the bandsaw - well I did run one face on the Linisher but to all intents and purposes the top surface was 'sawn' so therefore had undulations so wasn't 'flat' nor particularly parallel to the bottom surface - well, within less than a millimetre but not close enough to provide an accurate datum. I created a [Skim Surface] MOP taking two cuts of 0.2mm so if the surface didn't clean up I could adjust Z0 by 0.2 to 0.4 and run it again. Once the surface is 'clean' the next tool can be [Zeroed] to that and whatever the depth of cut needs to be will be accurate to that surface simply by using 'Stock Surface' = 0 and 'Target Depth' = whatever figure is needed ---- Result!

Fig-48



Whilst I was waiting for the Denford to complete its work cutting out the Frame [B] component I got on with work on the Lathe and since the Pendulum Rods had arrived I decided to start on the components for the Bob adjustment. This consists of a small brass section which will be epoxied into the end of the Carbon Fibre tube - I did think about putting an M4 thread directly into the tube but the suppliers warned against trying to cut threads as they thought that the fibre would just crumble. Only time will tell whether I need to also use a cross-drilled hole and pin to secure this section to the Carbon Fibre tube. This small section just has an M4 thread which will have a 130mm long brass rod with 50mm of M6 thread screwed into it.

When assembled, this 'rod' will pass through the Pendulum Bob and into the [Adjusting Nut] in the centre. Regrettably, my phone camera won't show the component adequately so I've resorted to showing the assembly as a drawing (Fig-48).

Looking at which part to make next I decided to carry on with the Pendulum - in fact the [Bob] which although I originally designed as a conventional disc I've now decided to make as a Reuleaux Pentagon. I still haven't decided whether it should have the point Up or Down!

I have a 'lump' of Walnut which was given to me some while ago with the caveat that it came from a sack of 'firewood'. There is enough to make three - you will have noticed, I'm sure, that I'm making 4 of everything with the hope that I might end up with at least two clocks. This is essentially a 'learning CNC' exercise so there are bound to be mistakes made but hopefully by the time I've made 4, I should have sorted any issues. This 'lump' was accompanied by another three, two of which really are firewood but I can get the fourth Bob out of the last 'lump'. Fig-49 shows the 'Lump' with a template attached to determine the location of the centre hole.

Today I've cut the outline roughly to size and drilled/reamed a 6mm hole in the centre as a datum. This will become the clamping hole, positioning the blank at X0/Y0, but the first thing that needs to be done is to get the thickness down to close to finished size. Ultimately the surface will be curved and therefore machined on the lathe but I also need to drill a ¼" hole from top to bottom (125mm) and for that I need the blank to be flat and parallel so that I can hold it in an independent four jaw chuck on the lathe so that there is a fighting chance that the hole will be central and straight – It is much better to turn the work rather than the drill and I will start with a stub drill moving on to a 'Jobbers' series and finally a long series. If necessary I also have a 12" long drill in case the long series doesn't quite cut he mustard. This will be an 'interesting' operation!!

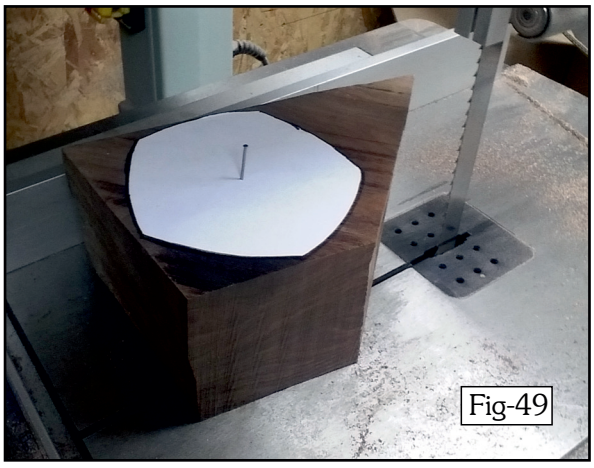


Fig-49