19th Sept

Having trouble with my phone today - using it to take photo's :(it seems to be getting worse but it may be that the objects are so small that I'm having to get very close. I've also tried using an endoscope but even that doesn't perform well when hand held. I do have a Mamiya RZ67 Pro II 120 SLR camera (£3500s worth!!) but that's hardly suitable for this type of work and two other Digital cameras that have failed for various reasons so I'm stuck with just the phone at the moment - hence the low and variable quality of my images.

Today I've made the Pendulum Pivot blocks and since they are only 6 x 4 x 12 mm you'll appreciate my problems.

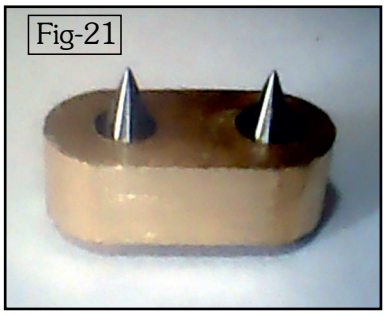


Fig-21

Fig-21 shows the Pivot Block with the two pivot screws in place – upside down naturally – and Fig-22 shows it in place on the Pendulum Pivot. The Pivot Block will be fitted into the top of Latch Lift and Finger assembly, see Fig-10 which will be attached to the top of the Pendulum Rod.

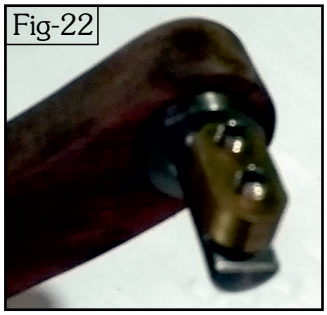


Fig-22

The reason for using two pivots is to prevent the possibility that the Pendulum might rotate under the influence of the 'Coriolis' force - (think Foucault Pendulum) thereby causing the 'Finger' to disengage from the Escape Wheel Pins which would allow the drive weight to 'free-fall'.

The Latch Lift/Finger assembly has been glued together and now needs to have the hole reamed to size and the recess for the Pivot Block milled in line with it. Holding the assembly to ream the hole to 8mm dia. is no problem as there is enough parallel side body to hold it in the vice but it will need some special clamping to maintain the centre location when turned to cut the recess.

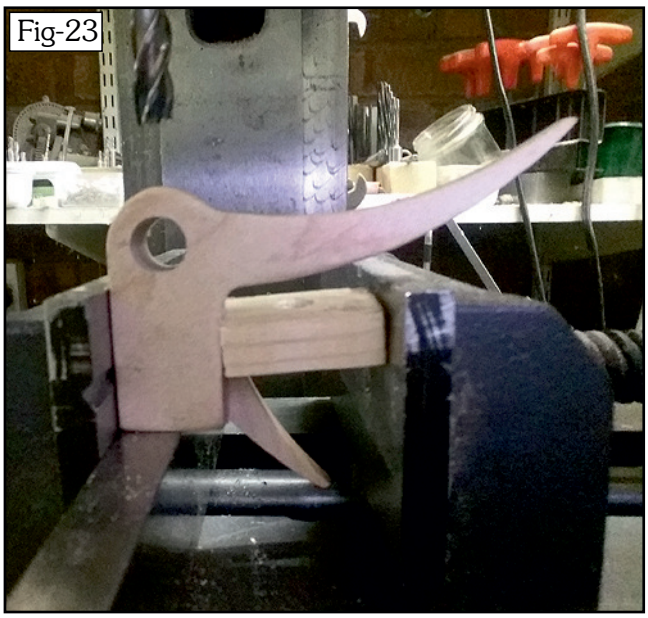


Fig-23

Fig-23 shows the Latch Lift/Finger assembly after having the bore enlarged to 8mm dia., turned 90° but keeping the left Vice Jaw as the datum, being clamped with a suitable scrap of timber, ready to have the 6mm wide recess for the Pivot Block machined into the top.

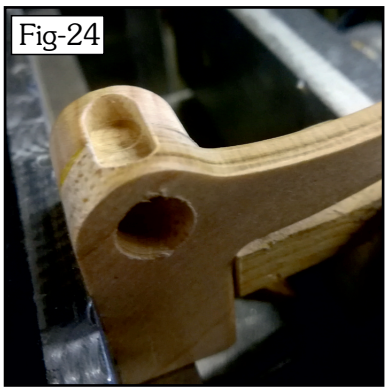
20th Sept

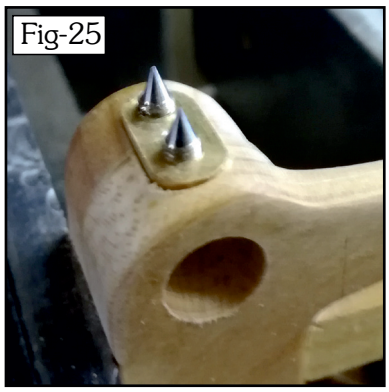
A new day and another chance to make a mistake! I had taken care to keep the vice in position so that milling the 6mm slot would be 'in line' with the 8mm bore but I hadn't been as fastidious as I ought to have been in checking that the bore was at 90° to the face. The fact that this is an assembly of two parts manufactured independently and glued together, coupled with the clamping method, means that just a small misalignment will cause a 'twist' away from the perpendicular.

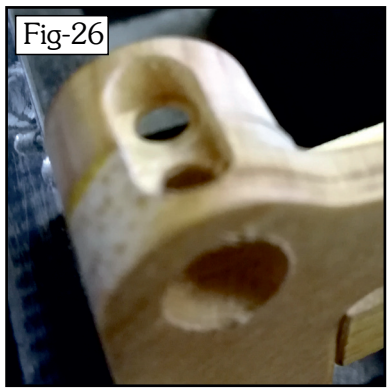
I only found this out when I came to fit the Pivot Block with Pins and was puzzled to see that the two pins were not perfectly in line with the bore. Proper investigation showed that the back of the assembly was not absolutely flat - in my haste to finish the bore, I'd forgotten to clean up the datum face. To some extent it isn't a disaster as the 8mm bore a just a clearance for the 6mm Pivot, and I have another three assemblies to machine correctly!

On reflection, I suspect that it would be better to fit the Pivot Block before drilling & tapping the M3 holes for the pins..... but that would mean leaving it 'til the assembly was finished and the Pivot Block glued in ..... hmmm.....

There's not enough room on this page for the next set of photographs – which are marginally better quality since I borrowed my Grandson's phone – they show the stages in fitting the Pivot Block. I've also made the Brass cap that both hides the Pivot screws and goes some way to lessen the potential ingress of dust though it is not intended that the pivot needs oiling so it's unlikely that there would be a build up anyway. A Brass cap does also look better than a hole.







Figs 24 & 25 show the recess and that the Pivot Block does fit, though to test that, I had to fit it upside down – 26 shows that the recess needs drilling through to allow the Pivot Pins to protrude into the 8mm bore and mate with the Pivot Dimples.

The hole to take the Pendulum Rod has been drilled in the bottom of the Latch Lift/Finger assembly and as a quick test I fitted a length of Acetal Rod - the Carbon Fibre Rods are due on Tuesday or Wednesday.

I haven't yet epoxied the Pivot Block in place but without a Pendulum 'Bob' the 'Proof of Concept' test didn't pull it apart and shows that the Pendulum will swing very freely - I'll see if I can capture a video and attach that. There's nothing 'driving' it at the moment so I'm unlikely to get more than a half a dozen 'swings' - oh, and they won't be 1 second :)

Pivot Assembly ready for 'Swing' test