



Bulle Clock Serial Number 201191. (*By kind permission of the owner*)

*Restoration of Bulle Clock
Serial Number 201191.*

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—Early Battery Clock Parts & Restoration

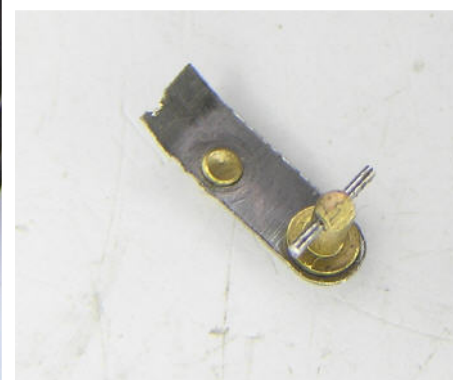
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A short Bulle movement (clockette) on a round mahogany base. The clock will be shown at various stages of restoration.. The photo below shows the damaged fork.



This one shows the badly worn driving pawl.



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The clock has at some stage been subject to excessive oiling as can be seen in the oil soaked insulating bushes which will now need replacing. The movement also seems to tilt at an odd angle?



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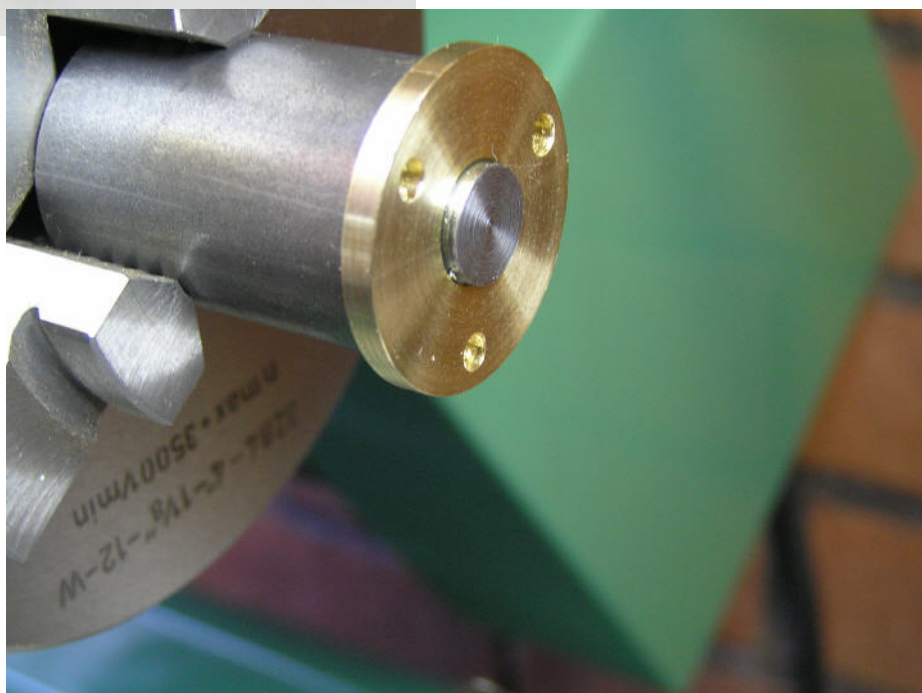


The thick spacer under the column turned out to be wedge shaped and pretty battered as can be seen in the photos. I hope you can see that the spacer thickens as it reaches the damage. The thickness was measured at 3.1mm on one edge and 3.55mm on the opposite side. No wonder the column leaned out at an angle. Fortunately all the damage was on one face only.

The opposite face was clean and square. So I mounted it on a mandrel in the lathe and resurfaced it parallel..

I also machined the perimeter to remove the bruises..

The resurfacing took off 0.5mm, so the thickness is now an even 3.0mm. We'll have to reassemble the column to make sure there is still enough height for the pendulum to swing freely.



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These photos show the state of the fork. Not only were the Silver and Fibre contacts damaged, there was also a thick oily sludge everywhere. I have ground the rivets down slightly here so that they will be easy to punch out.



The bottom photo shows the fork after the rivets have been removed using the Staking set. The whole fork and arbour have been cleaned and polished ready for the new contacts to be riveted in place. Note how the original holes were square punched when manufactured.

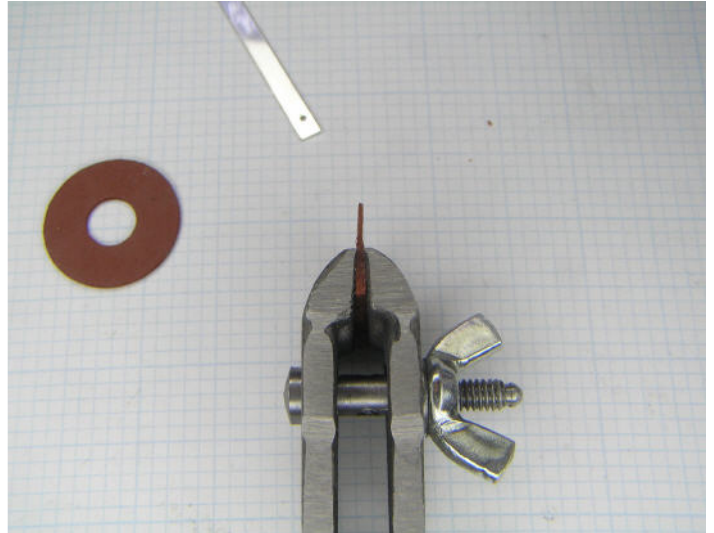
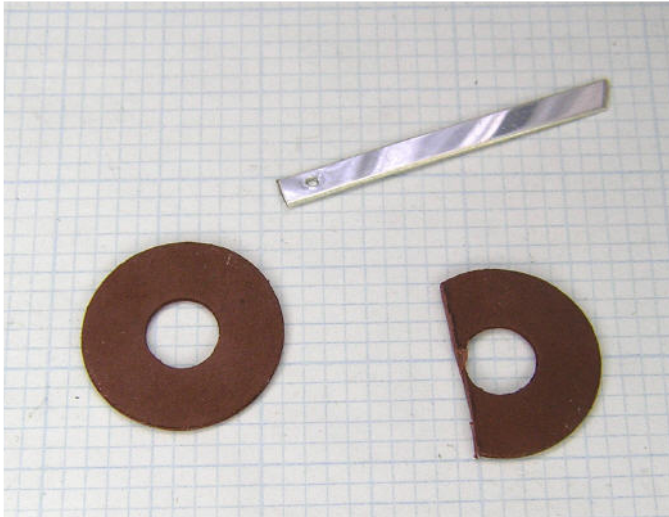
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The first stages in making the replacement fork contacts. I use hard fibre washers which are then roughly cut to shape and thinned before fitting. Once in place I can finely shape with a disc cutter and needle files. The edge is then polished smooth. The silver I obtain from a jewellery supplier in strips ready sized for the job. The hole is then punched on the staking tool. The disc cutter is shown below. It is a useful tool if used carefully with an eyeglass.



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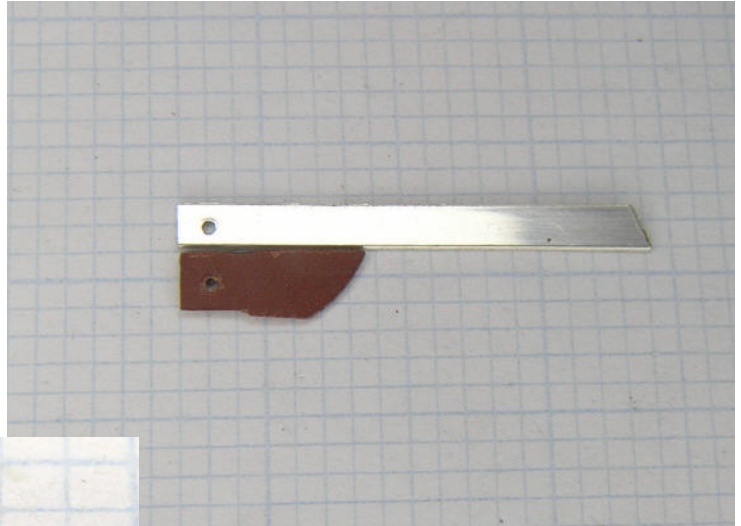
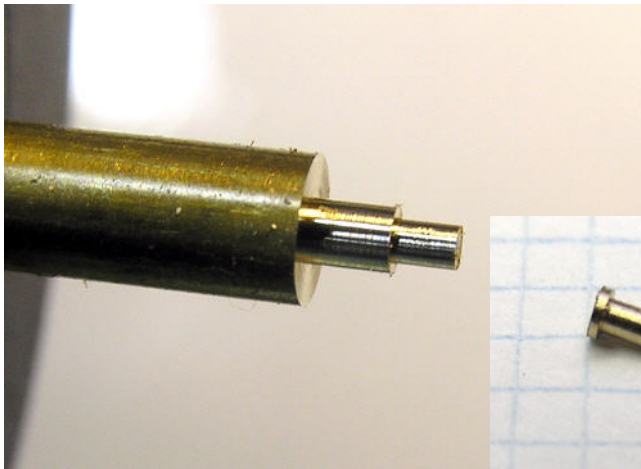
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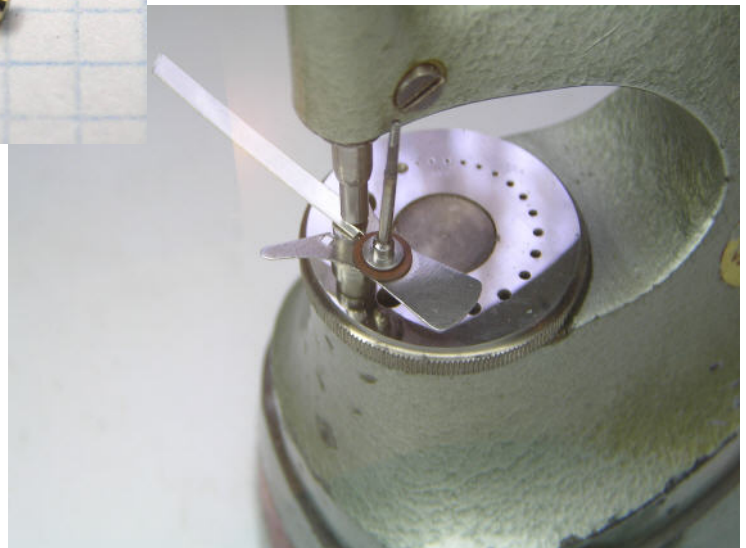
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The photo right, shows the embryo contacts before riveting in position.. The rivets are turned on the lathe from 3.0mm brass rod. The head is 1.5mm, the length 1.3mm and the diameter 1.00mm.



The contacts are now riveted in place using the staking tool. The finished fork is seen below.



All that's left is to clean and polish the contact faces so that they are smooth and free of burrs etc. The fork is then cleaned again and checked for continuity.

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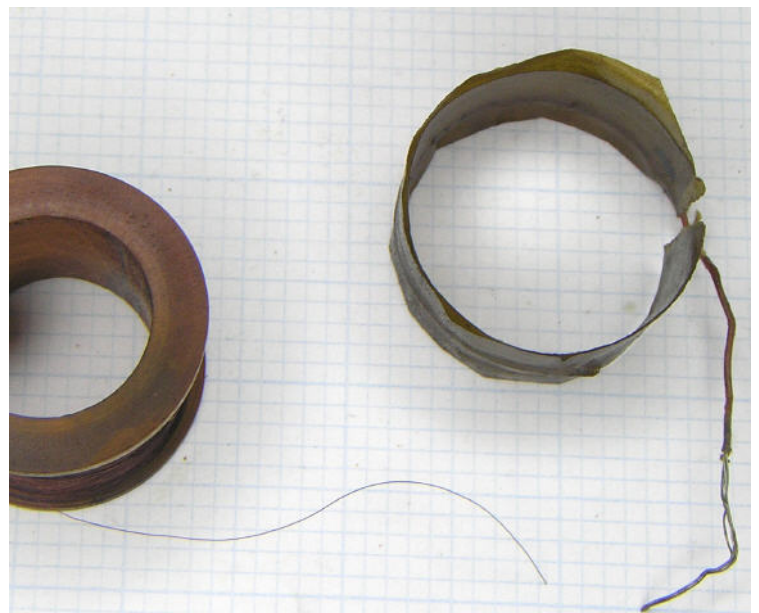
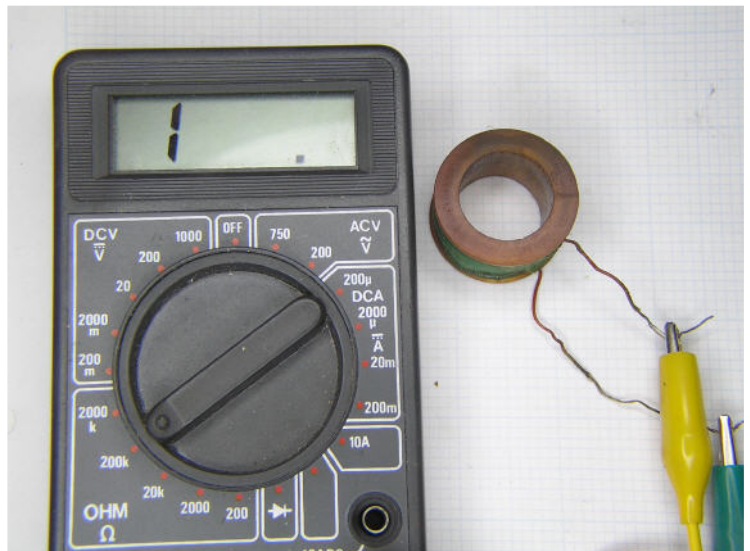
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As can be seen from the photo on the right, the coil seems to be dead, in that I could not get a resistance reading at all. After checking all other possibilities (including the meter) it must be assumed that the coil has a break somewhere in its windings. The probable areas are the joints where the 42 gauge wire is soldered to the heavier gauge contact wire. Hopefully this will be at the outer end and not the inner!



Thankfully the former was the case and it is an easy job to clean and re-solder the connection.



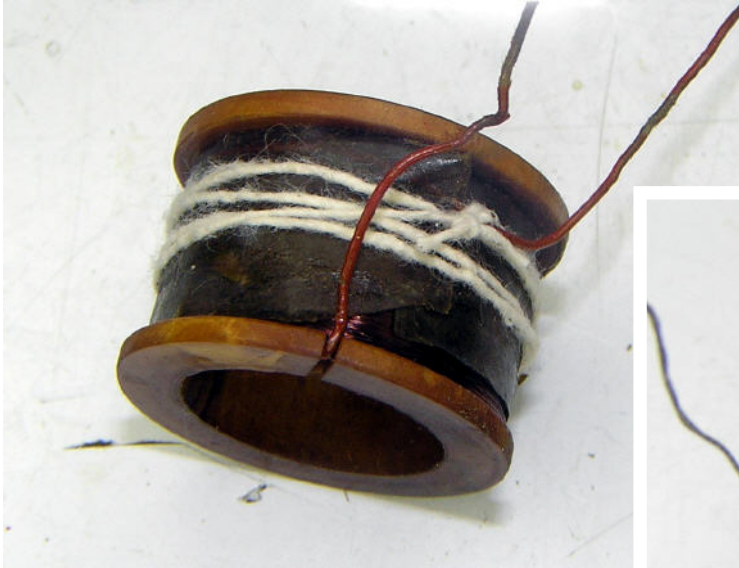
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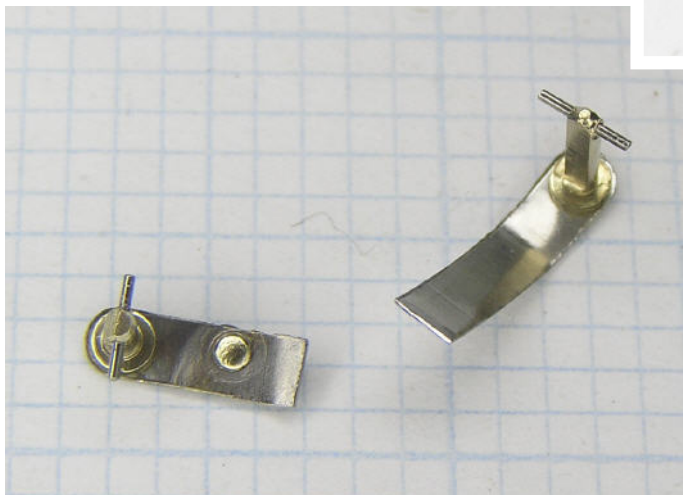


The coil after re-soldering the join. The original wax paper was re-used to cover the joint but the old string fell apart so I had to resort to some new.



The original green ribbon was also re-used and put back in place as near as possible to its original position..

The coil was then checked again for a good resistance. The meter read a steady 1240 Ohms.



The pawls have been re-ground and polished. This process took about 0.25mm of the length but should not make any difference to the action. The driving pawl looks odd because the small brass weight has been punched off centre during manufacture.

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The photo below shows the state of the count wheel assembly. It was thick with oily sludge. The photos at right show the the same assembly after cleaning. The clock coil and magnet must have had a hard job trying to overcome the drag created by this mess.



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The clock , finished. The next two pages show the completed clock. It is now keeping good time. This photo shows the repaired fork and contacts, once again performing good service as they were originally designed to do. The silver pin shows a score mark which was probably caused by the sharp edge of the fork when it was left to start its cutting action after the silver contact on the fork was partially worn away. The contact assembly was re-assembled with the clean un-worn side of the pin at the bottom.

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End

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