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The place to come for all your Bulle and Eureka restoration parts.

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Eureka Clock Serial Number 7085

*Restoration of Eureka
Clock Serial Number 7085*

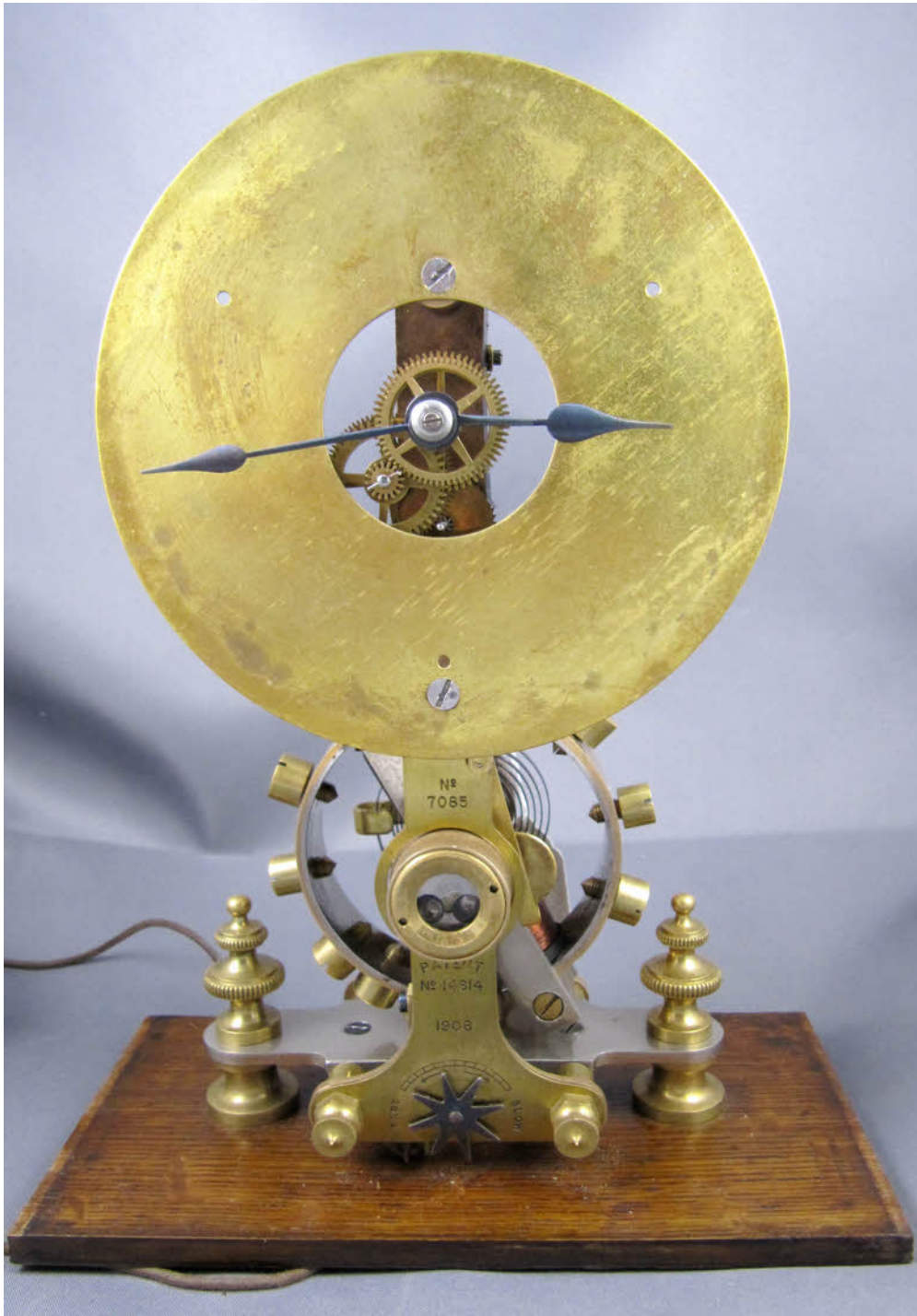
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Photos by kind permission of the owner.

As delivered this is a tall 2 ball movement without case or dial, but the base suggests that the clock comes from a wooden case model. From an initial inspection all seems to be OK with nothing missing or badly damaged.

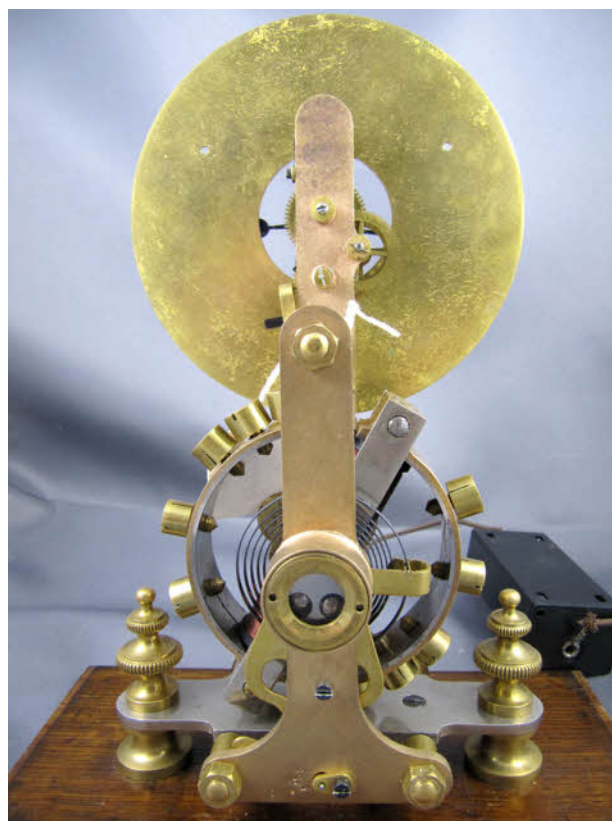
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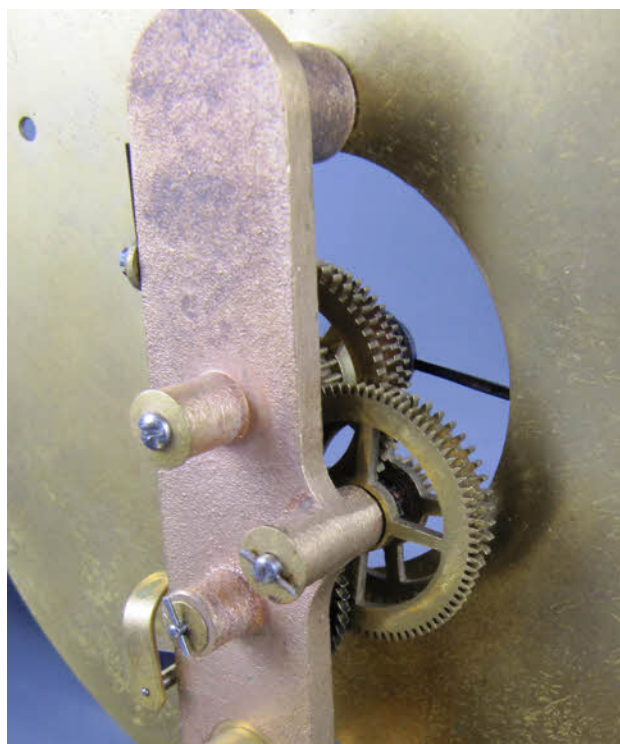
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This group of photos shows the front and rear of the movement. The top photos show the registration plate which has lost some of the wax infill from the engraved characters. This will be corrected. Some of the screws are slightly damaged or have lost some of their colour. These will be polished and blued. Note the steel windowed plates in the bearing housing. These provide hardened end bearings for the pivots which would otherwise bear straight onto the glass. From the number of clocks I have seen it would appear that all two ball movements have these bearing plates while the three ball movements don't. What then stops the pivots touching the glass on these movements? Well on all the three bearing movements there is a brass push on collar on each pivot which bears against the balls if the balance wheel moves too far to the left or right. The last photo shows the excess number of collars on the rear of the motion work. The top one is certainly not needed as the large screw head acts as the end stop. The addition of the collar has been known to be too tight and not allow enough end shake for the arbour thereby jamming the motion work and stopping the clock.



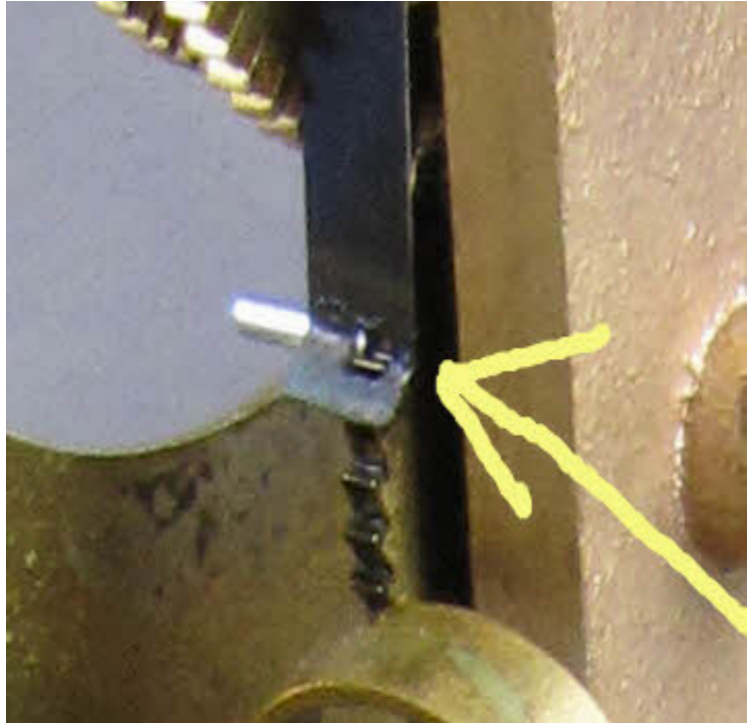
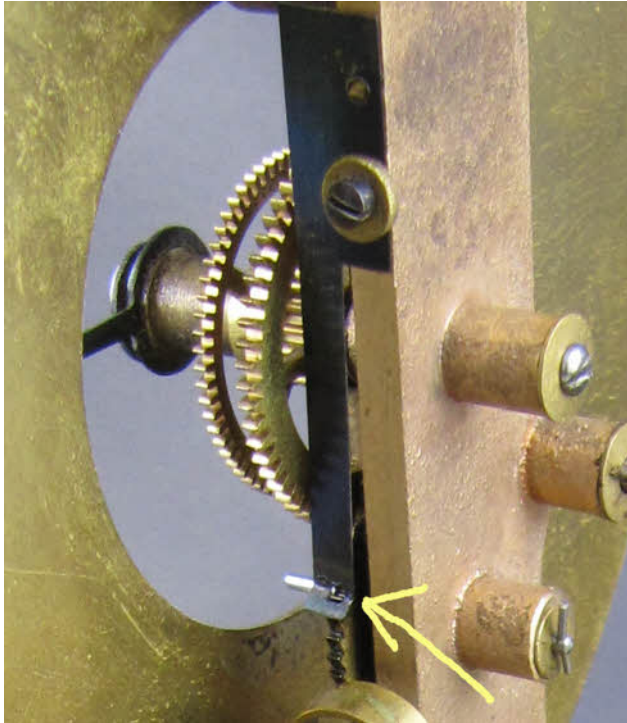
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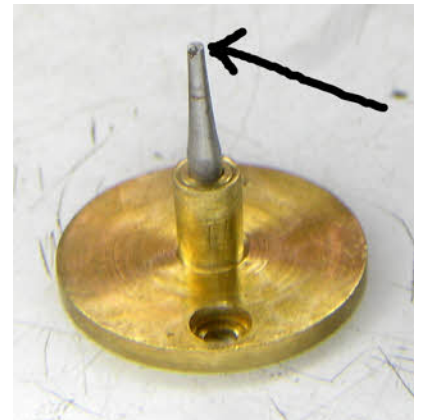
These two photos shows the position of the motion click spring and a close up of the damage caused by the constant wearing of the count wheel teeth. It has worn completely through and will need replacing.



A side view of the clock. Note that the movement already has a new replacement flag and pin set. The owner of the clock had already purchased a new set from me but could still not get a good function from the balance wheel. This set will be kept and reused.



Note the position of the two screws securing the contact block. They are sitting proud of the block which is incorrect. So the block may have problems.



The rear pivot has been replaced and has a broken end. This will need replacing.

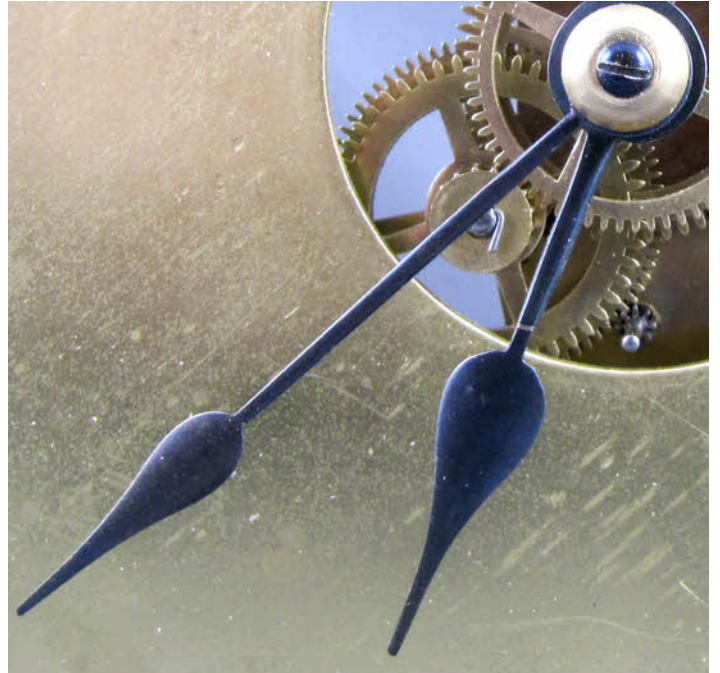
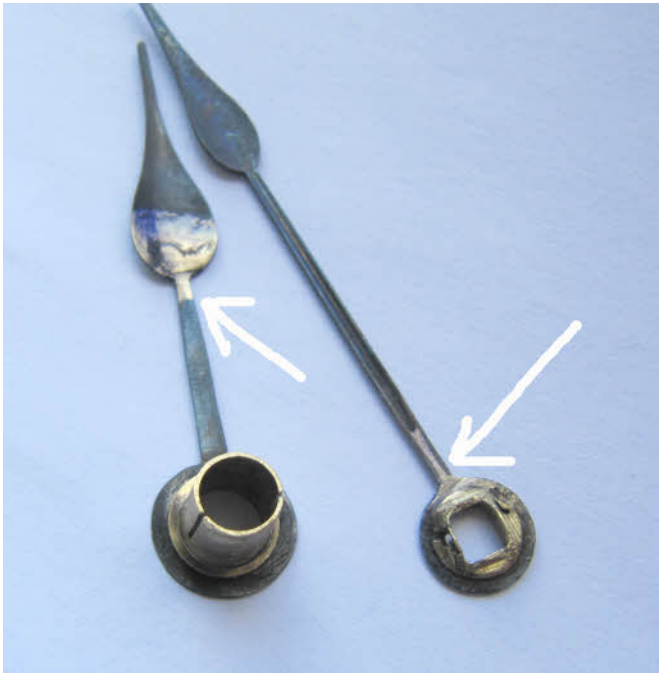
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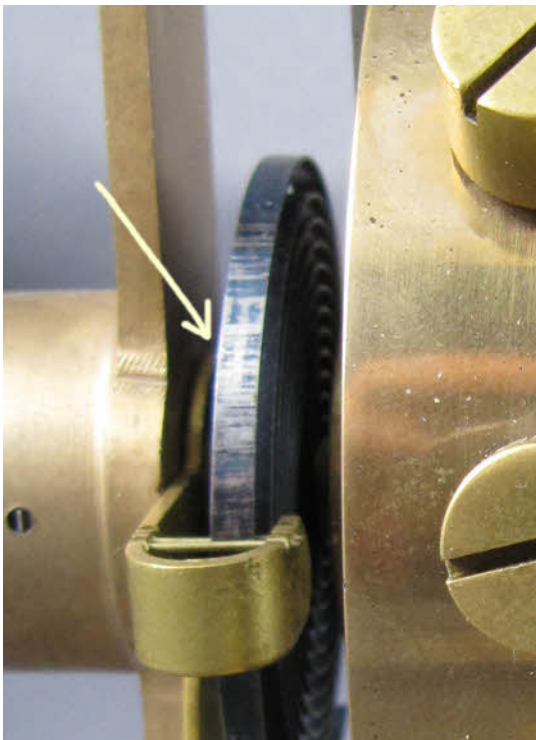
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Both hands have been repaired by silver soldering. This is an effective method of repairing hands. The solder is strong enough to “butt” weld the thin steel and should withstand many years of use. The photo on the right shows that the soldering has been done well enough that the repair cannot be seen from the front. This method of repair means that the original hands can be kept with the clock.



This photos shows the wear marks on the balance spring. These are caused by the two wires in the regulator segment that capture and restrain the spring allowing the segment to adjust the timing. It seems therefore that the clock has seen many years of adjustment back and fro. It sign that the clock has always had timing issues. After removing the spring I found that it was short at only 11.5 turns where normally they are 12.5 turns. I have seen one other clock with a short balance spring which also happened to only 11.5 turns. So it is difficult to say whether they came from the factory like this or were shortened later.



The rear bearings and ballrace assembly. Note the thin paper washers that protect the glass.

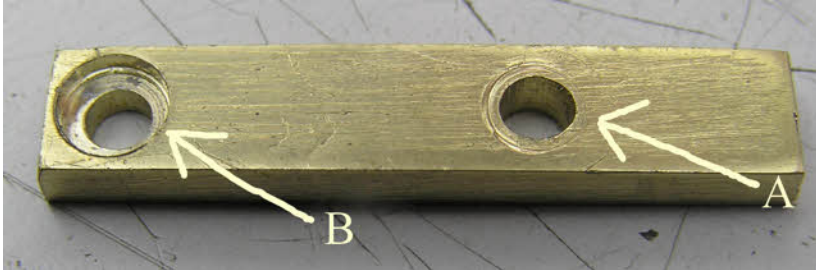
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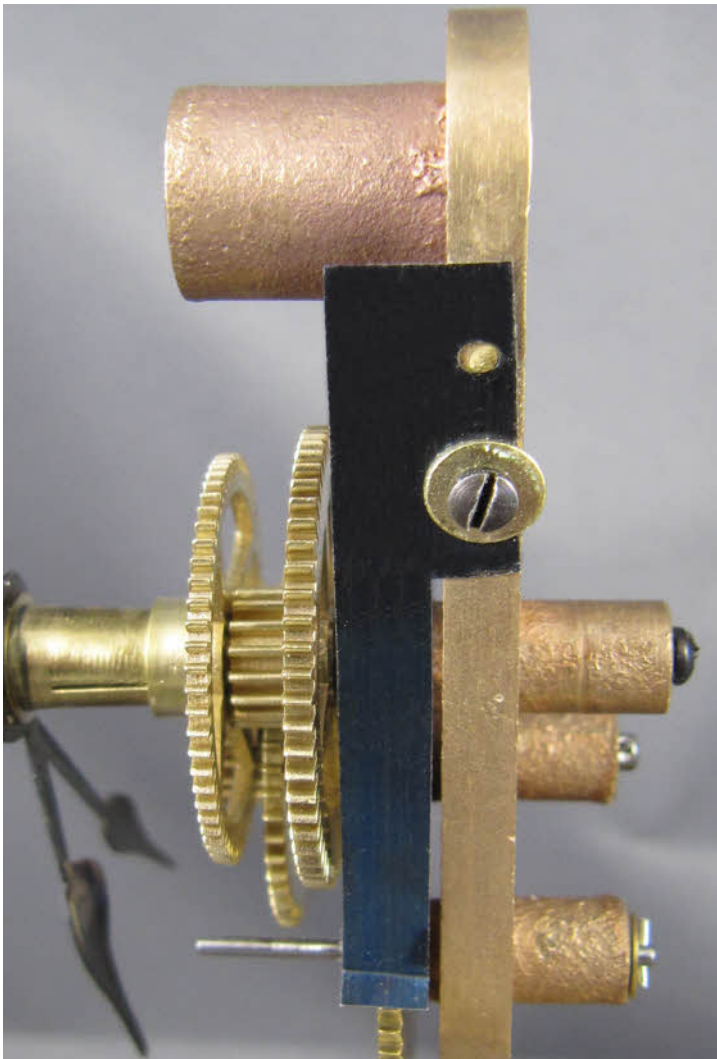
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Above is the connecting block which is a replacement. It did not have counter bores (A) to accept the head of the screws which is why they were sitting proud. But the block itself is of the correct dimensions and therefore I have used it and counter bored the holes. The photos shows the position with one hole already bored (B). Both screw heads will now sit in the recess.



The rear pivot above has now been replaced with a new one turned from blue pivot steel. The end has been polished round so that no damage will be done to the steel plates.



The photo above shows both the original and new click spring ready for testing. At left we see it being checked for position and function before removal and final finishing.

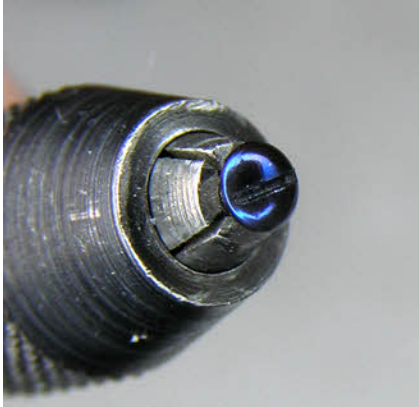
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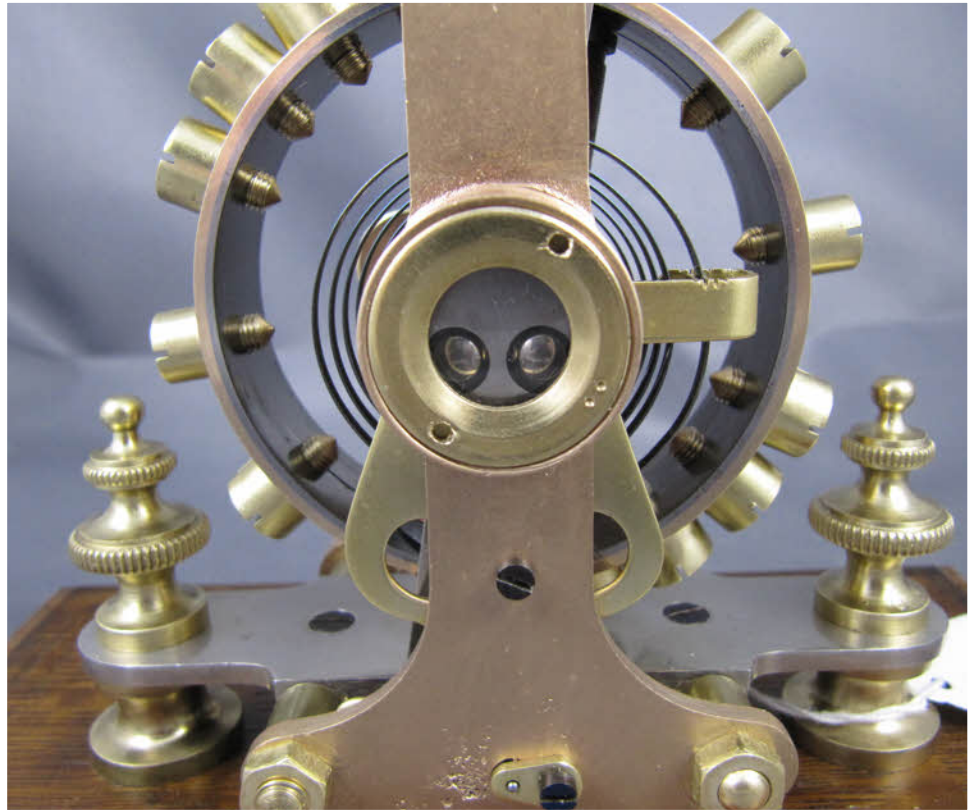
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Not all the screws needed treatment, but here we see one of them after polishing and blueing.



These two photos show the finished front and rear bearings. Note the registration plate engraving has been wax filled and the then polished and lacquered.

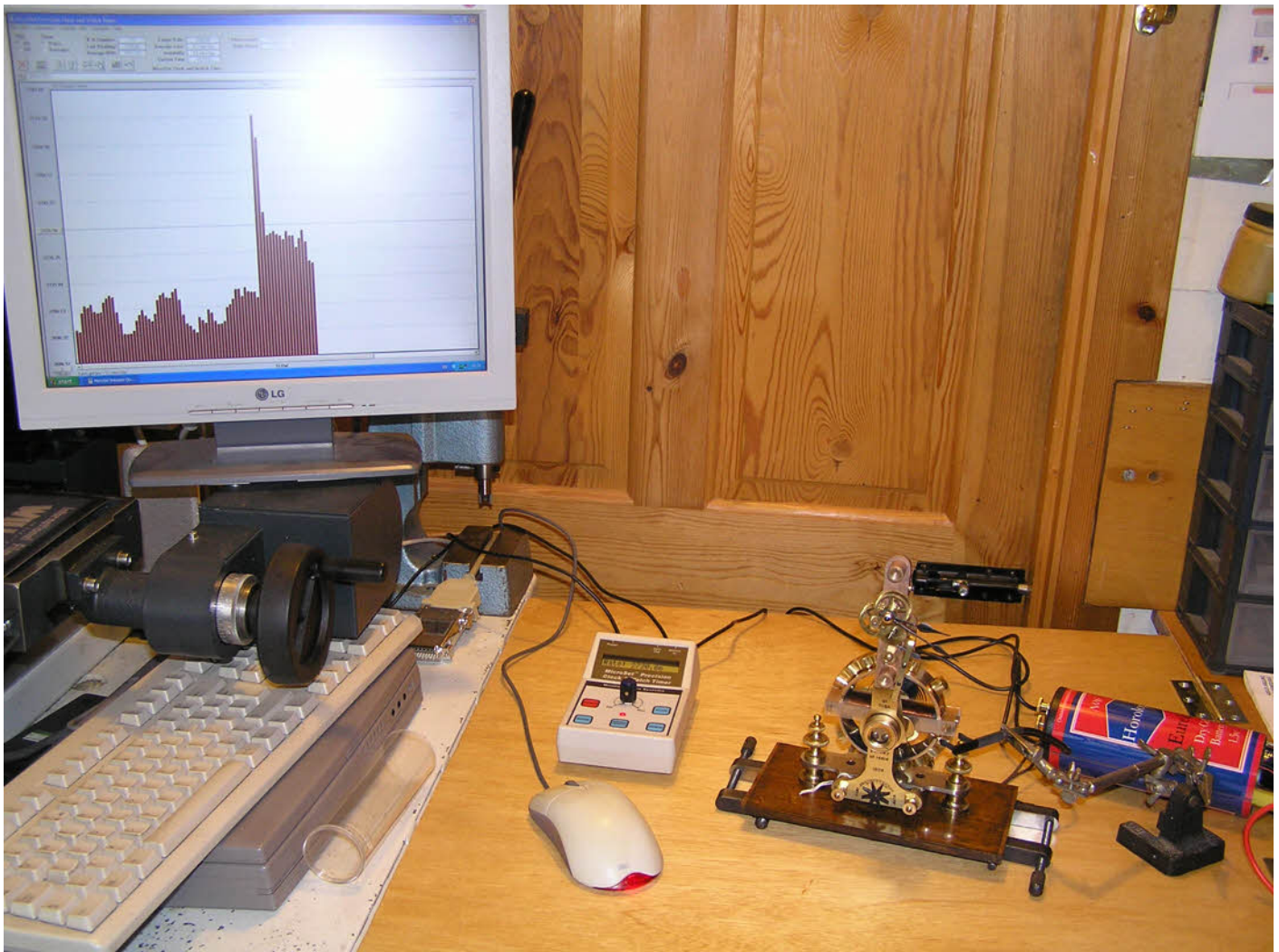
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The shortened balance spring definitely has some problems. Look at the graph on the computer screen. It is quite erratic. I use the Mumford Microset (www.bmumford.com) to record twenty-four hours of readings from the clock to check for anomalies. Eureka clocks are not renowned for their timekeeping. If you get a "good un" then you may perhaps be accurate to within a couple of minutes a day. But most seem to fall in the 5 to 10 minutes a day category. Even when new the springs were never consistent in their behaviour such that the factory used 40 tooth and 45 tooth count wheels in conjunction with many different weighted balance screws to try and get the clocks to perform adequately.

In this case I used my voltage regulated battery to set the amplitude to get the accuracy with tolerable limits. The strength of the spring meant that a full amplitude of 360 degrees would give beats of less than the required 45 beats per minute (2700 beats per hour). Adjusting the screws helped. Finally I settled on an amplitude of about 300 degrees with a constant voltage of 1.77v to give an acceptable count of approx 2700 beats per hour.

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The finished clock