



Bulle Clock Serial Number 6448. (*By kind permission of the owner*)

Restoration of Bulle Clock Serial Number 6448.

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Early Battery Clock Parts & Restoration

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This clock is a customers clock in for a full restoration. The case (not supplied) is of the Lancet type.

At first glance it looks to be in reasonable condition but in fact has many faults including some missing and non original parts.

The dial has been re-painted to a very good standard and would require more than a passing glance to show its origins. (Note the character 6 is slightly askew). The biggest giveaway though is the splurge of white paint on the back. Why make a good job of the front only to leave the back in such a mess? This will need to be cleaned off as one of the final jobs.



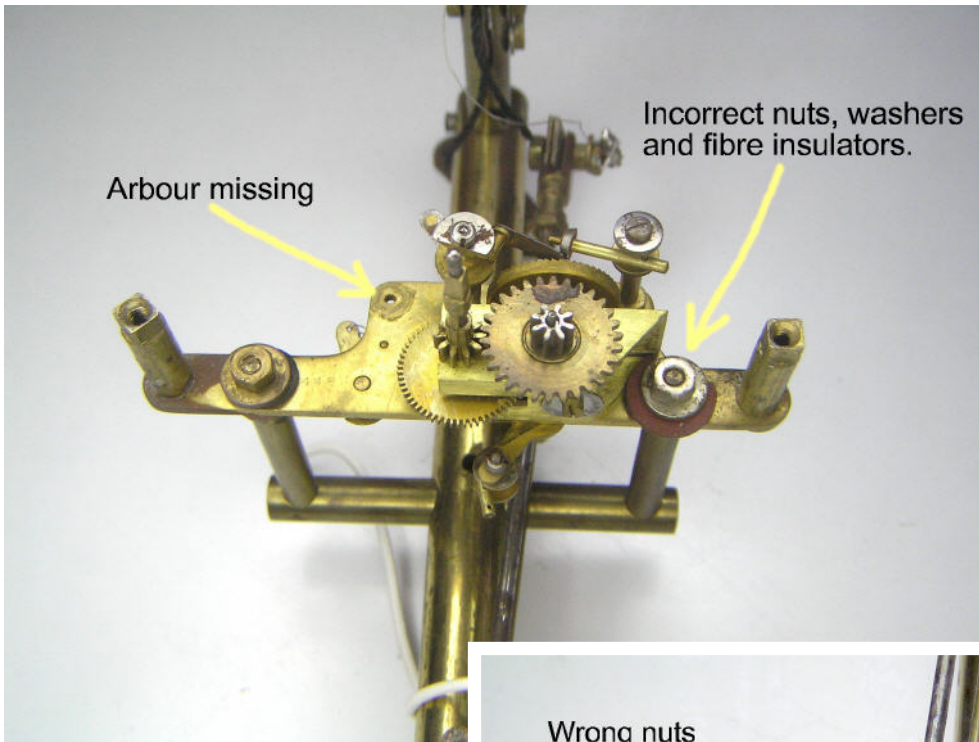
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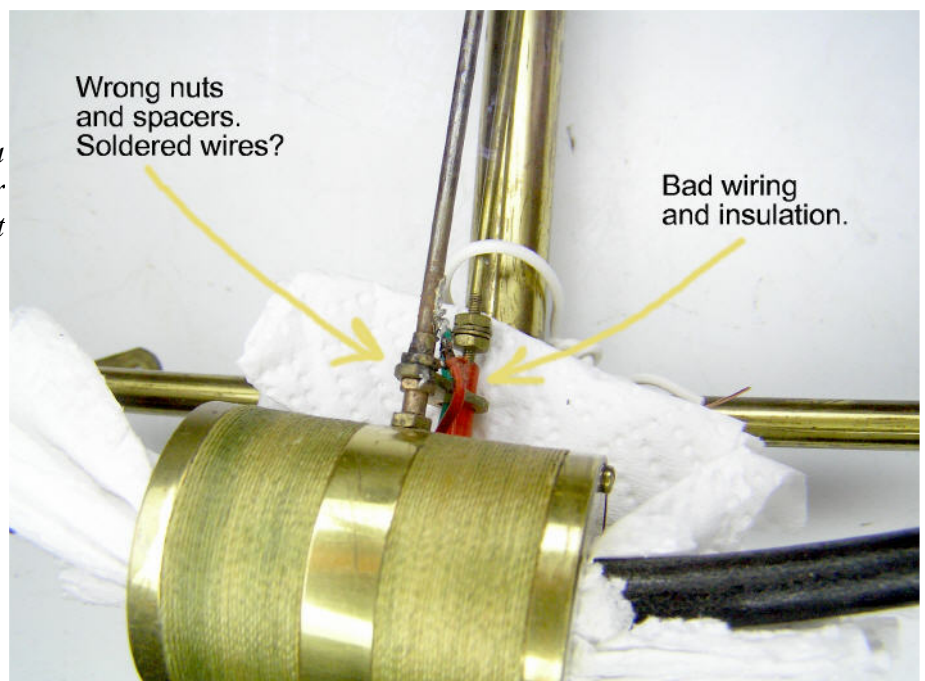
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The arbour that holds the damper and forward motion stop is missing. This will need to be manufactured or replaced from original parts if I have any.

There seems to be a lot of the original nuts and washers missing and replaced with odds and bods as can be seen here.

The coil connections look to be in a bad way. This does not bode well for the coil. It will need to be looked at and checked for resistance.



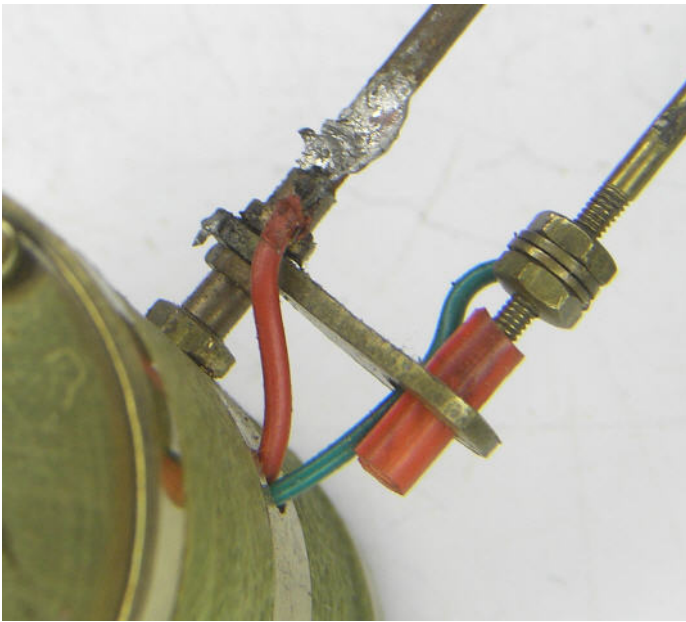
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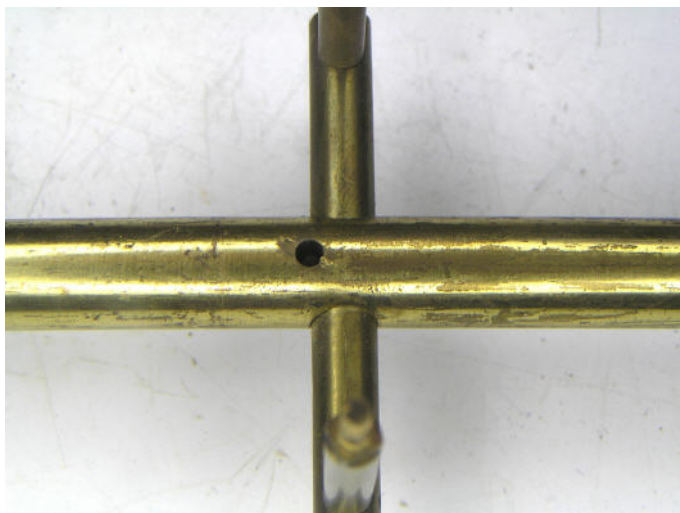
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The terrible wiring to the pendulum can be seen in more detail to the left.



The frame cross members were very loose. It was found that both of them were badly riveted when they were both refitted in the past. It looks like a nail was used!



This photo shows the reverse side to the arm above. The nail rivet doesn't quite reach the other side!

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The frame disassembled ready for new rivets which will be turned up on the lathe.



The top cross member also had some abrasion marks which are still quite bright inferring that they were recently made. It may be possible to fit the member the opposite way round with the damage on the underside. It will not show too badly when the frame is polished and lacquered.



The photo on the left shows the attempt at re-creating a Bulle suspension with two pieces of Black string!

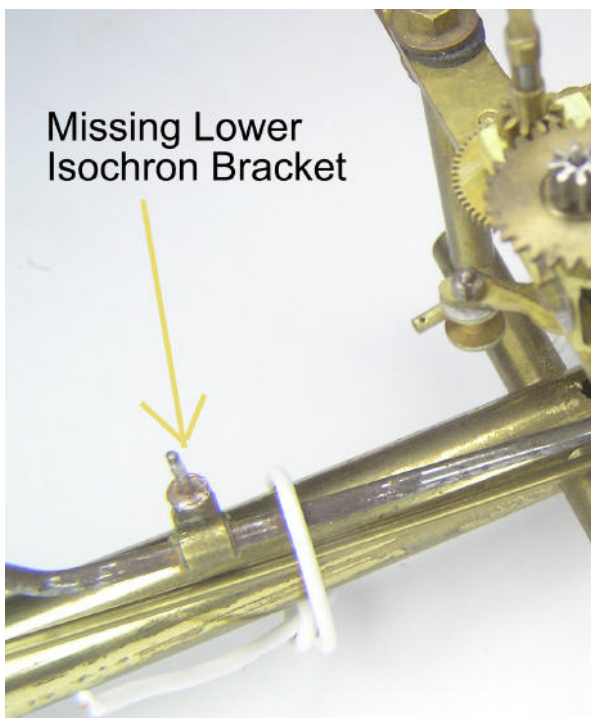
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The lower Isochron bracket attached to the pendulum is missing. The arbour is still there but the T-piece assembly and nut are not. I should have some replacements to hand from a partial pendulum assembly. If not a new set will need to be made.



For some reason the rating nut has been drilled with two holes. Maybe they were trying to light the nut to shorten the pendulum?



This photo above shows the corrosion to the movement frame. This looks as though it's an acid burn.. How the acid got there we'll never know. Twenty or thirty minutes in the ultrasonic tank with Horolene followed by Bicarbonate of Soda should make a difference.

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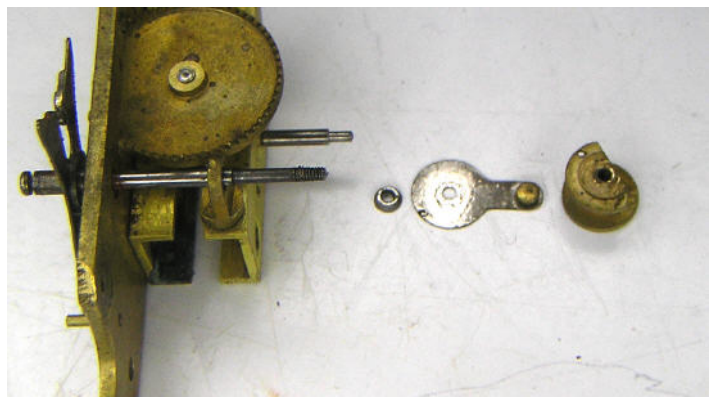
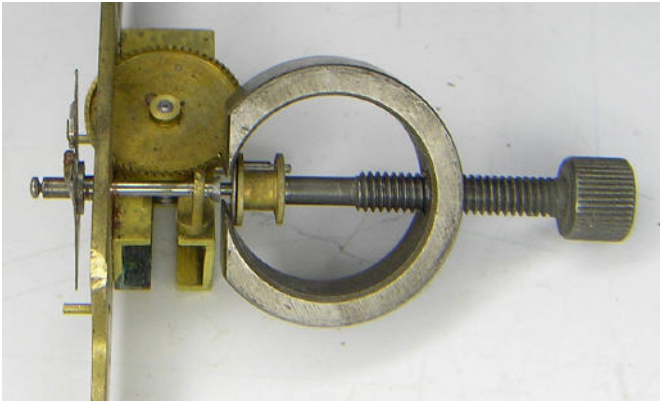
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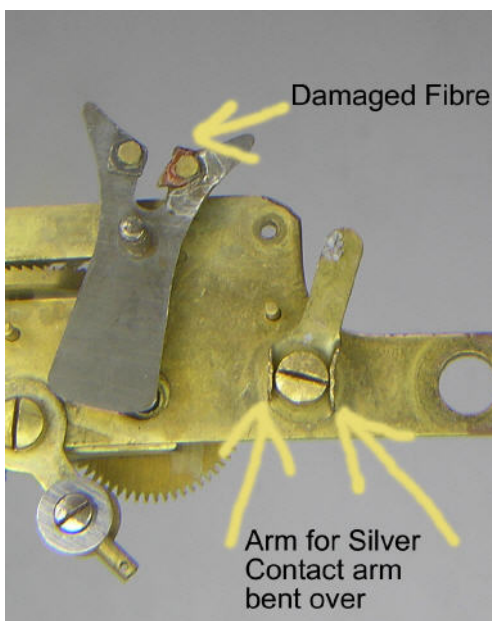
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If the driving pawl assembly is hard to remove then use a hand remover as shown above. Do not try and force the assembly off the arbour by any other method as the arbour is hardened steel and fractures easily. Protect the screwed end of the arbour with the retaining nut. Loosen it to give enough clearance for the pawl assembly to pull free. Note the two parts that are between the pawl assembly and the frame. The small ring is very small and easily lost but is vital to the correct working of the pawl. It butts up against a ridge on the arbour so that the pawl assembly does not bind against the frame. The steel washer with the brass button is a counterweight for the pawl and on re-assembly it should be positioned on the opposite side to the pawl.



This next photo shows the contact fork and the arm that holds one end of the Silver contact spring. The fibre on the fork is damaged, Someone has tried to reposition it to present a face to the contact pin. That will need replacing. I'll check the wear on the silver contact on the opposite face. This may also need replacing.

The arm for the silver contact has been forced up in two areas. I am still trying to figure out why. Perhaps it was to try and keep the arm in a single position. But that is the function of the screw! Ah well... I guess I'll have to manufacture a new one if I can't straighten it cleanly.

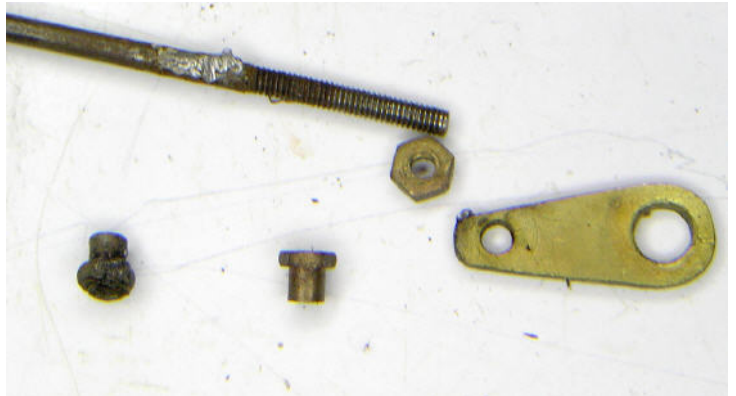
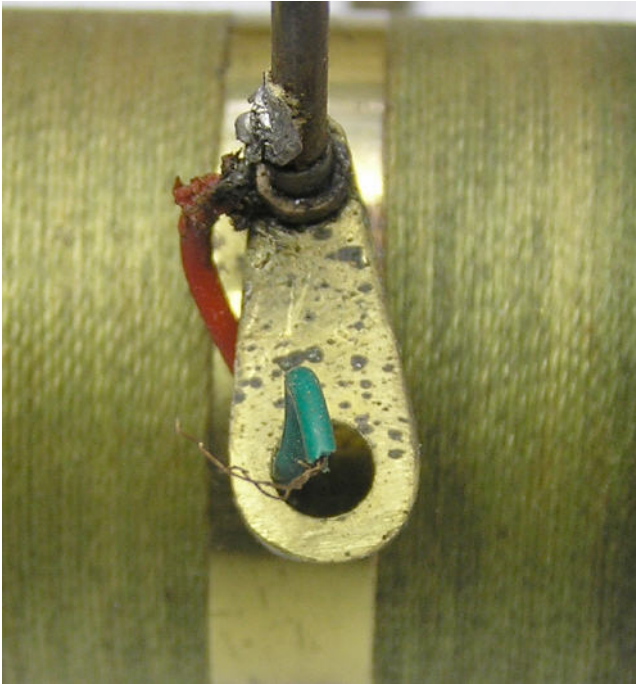
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These two photos show the arm that secures the pendulum to the steel rod and also allows the negative wire from the coil to pass through via an insulated sleeve to the brass rod that attaches to the Silver contact pin at the top of the pendulum. This arm is completely wrong and seems to be made up from various bits and pieces that are no part of a Bulle clock. Note also the solder on the

The photo on the right shows the condition of the coil. It has been repaired in the past with Insulation tape which has left a gummy deposit on the wire. I have removed what I can and recovered the coil as in the photo on the far right. I have also fitted new insulation.



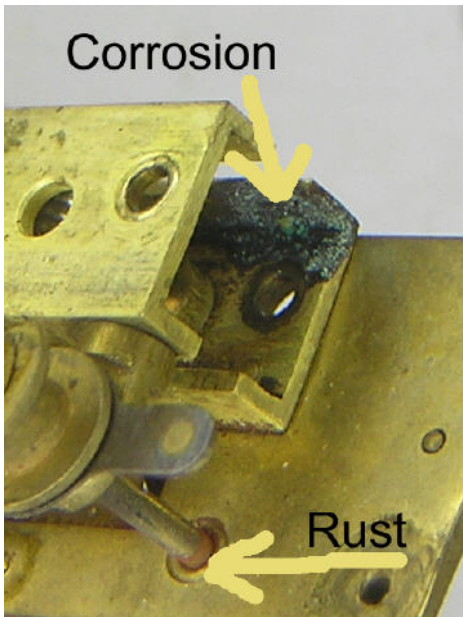
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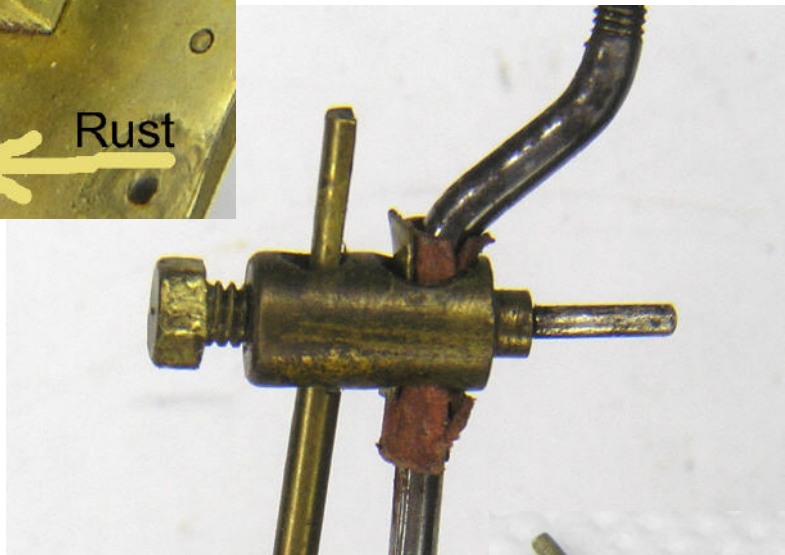
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The photo to the left shows the corrosion to the movement which again looks to be caused by battery acid. The brass can be cleaned up quite well using the methods described previously but it has to be said that there will be some pitting in the metal. In this case it will not normally be visible as it is on the inside of the plate.



The contact assembly is missing the "T" piece steel strip and has been replaced with a thin strip of brass. The original would have been thicker and the "T" shape would have prevented it slipping out. This will have to be replaced otherwise the screw could cut through the thin brass and fibre, thereby shorting the circuit.

I have found a few parts for the missing arm assembly. This piece is part of the damper and is normally filled with the same cord as is used on the outside of the coil casing.. On a working clock this shell is filled with the cord well oiled for lubrication. The 0.5mm cross pin is also missing and will be made from Piano wire. The whole assembly is shown later with the new parts needed to complete to arm.



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This was meant to be the top contact for the wire that jumped the gap in the circuit caused by the silk suspension unit. I didn't need to do much to dislodge the lump of solder. Just a quick flick with my finger nail was enough to send it flying.

I think that's enough photos showing the problems. There were other parts wrong, damaged or missing but I have covered those in other restorations. Certainly the method of fitting the new fibre to the fork was covered recently so I will not show the work involved in that.

This photo shows the new steel "T" piece for the contact assembly. This was cut from 0.5mm mild steel sheet using a piercing saw and finely shaped with a needle file. Don't be too fussy in the final finish as the originals were roughly punched out by machine.



The damper arm shell has been cleaned and re-pinned with 0.5mm piano wire. I stuffed the shell with some of the old cord that was wrapped around the coil shell and added a few drops of oil. The parts that were missing from the assembly were remade and are shown on the next page.

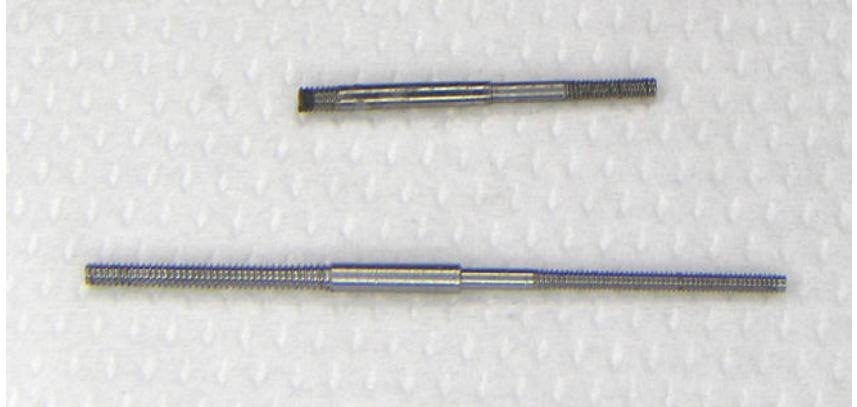
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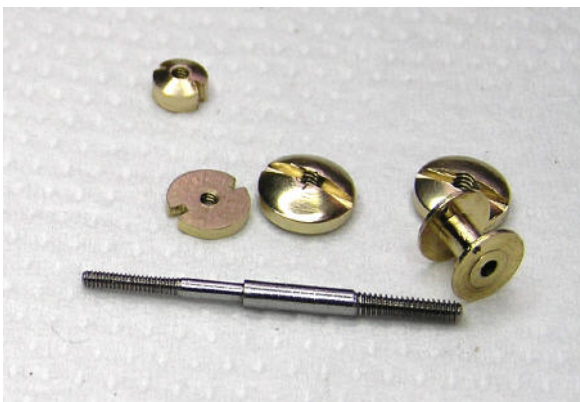
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The photo top left shows all the parts I had saved from a part movement that was found in a box of parts from an auction many years ago. The arbour had been snapped on the right hand side and had to be remade. The steel washers, although pitted, were still usable when cleaned up. The new arbour was turned up on the lathe and can be seen in the photo above with the old one for comparison. I left the threads long until I had fitted the other parts and offered them into position on the clock. The maximum diameter of the arbour in the middle was 1.70mm. The smaller diameter is 1.30mm. The other parts that were needed were turned up from brass on the lathe and threaded. The complete set of new parts for this arbour are show in the photo below left. The complete assembly is

shown in place on the clock in the photo to the right. Note how the damper is positioned over the fork arbour . The fork arbour is prevented from moving to far forward by the stop at the right hand side of the new assembly.



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The frame after riveting and polishing. The frame was checked for square and the joints tested for firmness. The whole was then lacquered.

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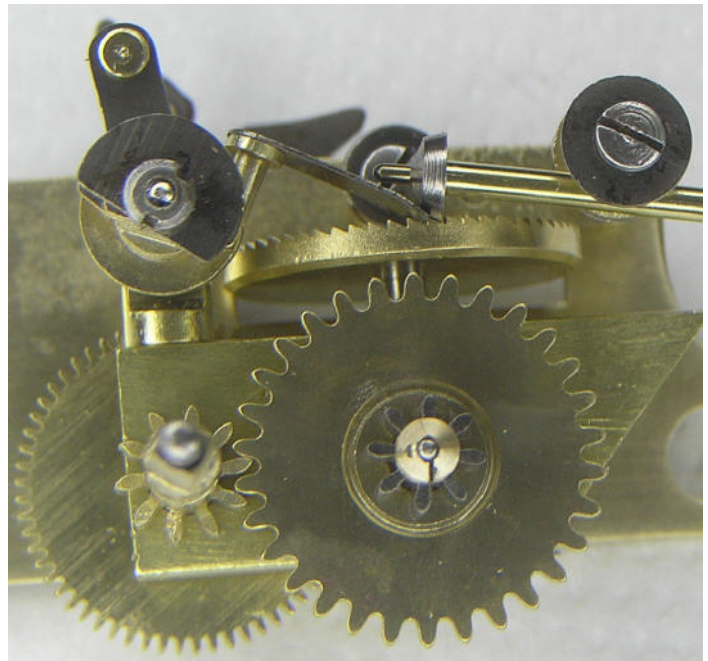
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The lower suspension nut and screw were missing and again a new set turned up on the lathe.



The motion work intermediate wheel arbour was missing the wheel retainer which is just a slit brass ring that can then be squeezed as a tight fit on the arbour.



The bottom of the pendulum can be seen in this photo on the left. The original cord ends as found inside the coil cover still retain their original colour and have been matched quite closely with new cord.

Note the difference in the wiring and insulation to that when the clock was received in the earlier photos.

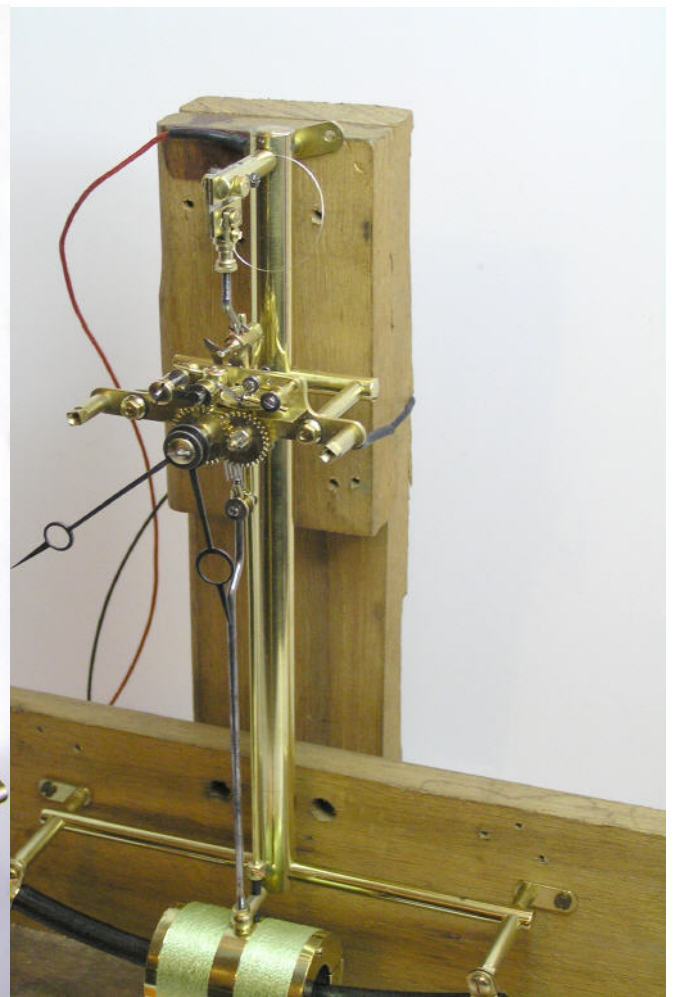
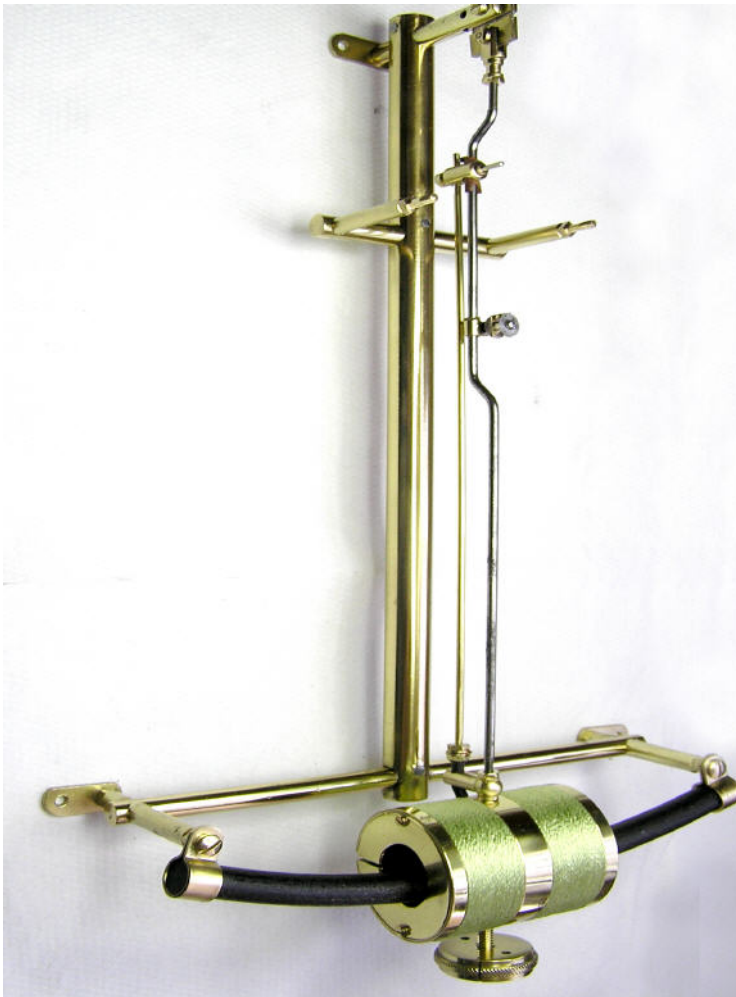
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The photo at left shows the frame and pendulum assembly now put back together ready for the movement itself. The lower Isochron bracket has also been replaced and shown in position. The bar magnet has had a coat of Grate Black to give it a bit of lustre. I don't normally paint these as any scratches would soon show up.

This next photo shows the frame, pendulum and movement on a made up test stand awaiting the final item - The Dial.

The clock is tested over a weeks period to make sure the timing can be fully influenced, both fast and slow, by using the rating nut only.

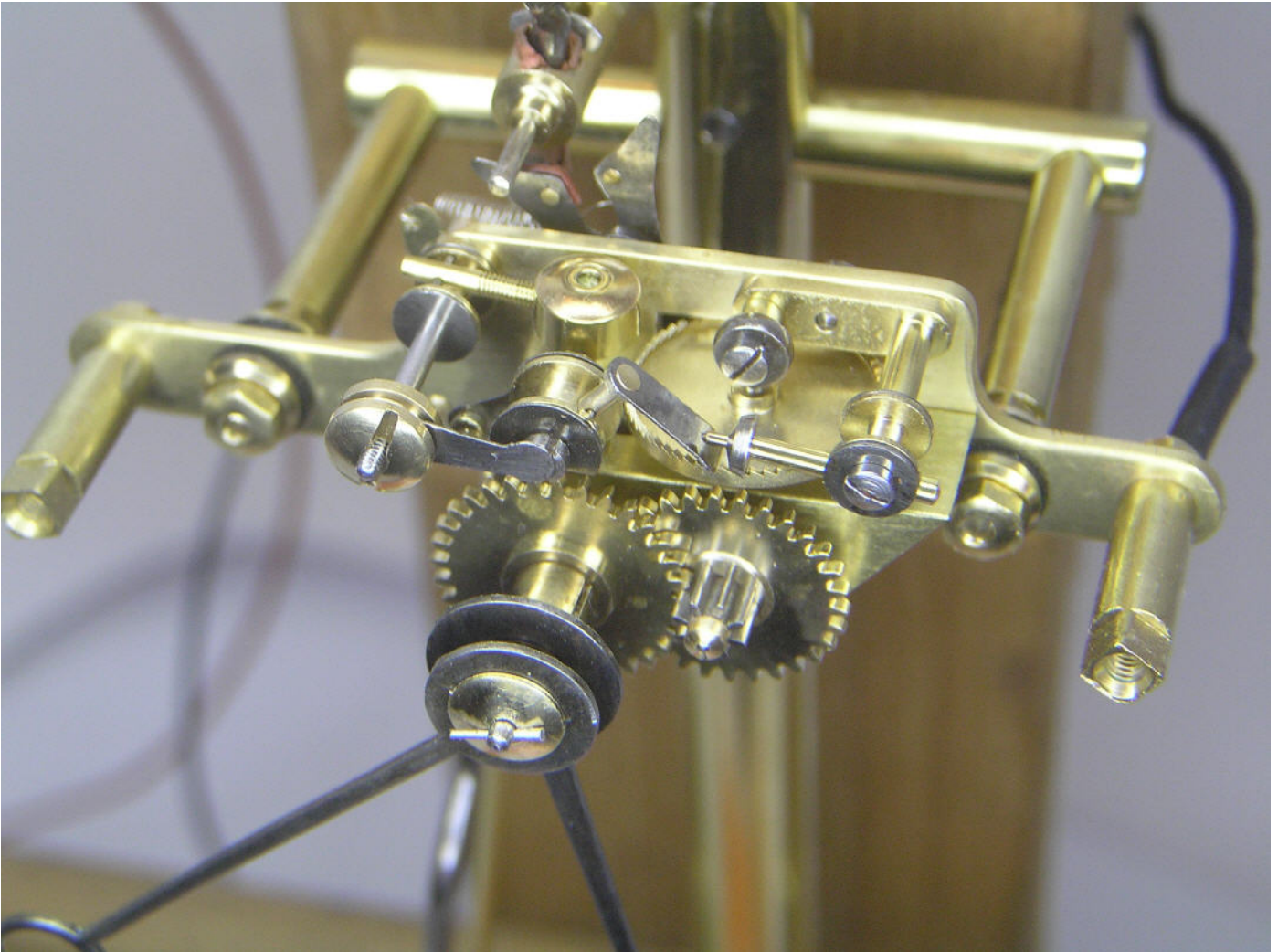
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The movement fully restored with the hands in place being tested for a full week. Note the differences in this photo and the ones taken of the clock as delivered. The new and refurbished parts have blended in very well. You would have to be a real expert to notice. Even then I don't think you could. You can just see the new fibre on the contact fork as the pendulum is swing to the extreme left.

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The dial now in place. Further proof that the dial is re-painted is shown in the photo at right. The figures "12" are scratched in the brass where the dial painter needed to know top from bottom. The photo at right above shows a small hole which together with another one at the three o'clock position suggests that this dial may be a replacement.

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The finished clock ready to be re-united with the case.



These photos of the case were supplied by the owner. Note the good dating evidence from the presentation plaque which reads :-

“To Miss Gebbie on the occasion of her marriage 16.6.23 from the staff of the Steel Nut and Joseph Hampton Ltd Wednesbury”

End

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