



Bulle Clock Serial Number 7894. *(By kind permission of the owner)*

Restoration of Bulle Clock Serial Number 7894.

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Early Battery Clock Parts & Restoration

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The full restoration of this Bulle with kind permission of the owner.

This Bulle is of the tall A type movement and frame but in a four glass case. The serial number 7894 puts it with the first two years of production.

The first impression is that it is a complete and tidy clock but there are some issues with it one of which is going to be difficult to sort out.

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The dial is of the alloy insert type and is in good condition with no large marks. The hands are slightly unusual in that a clock of this age would normally have moon hands.



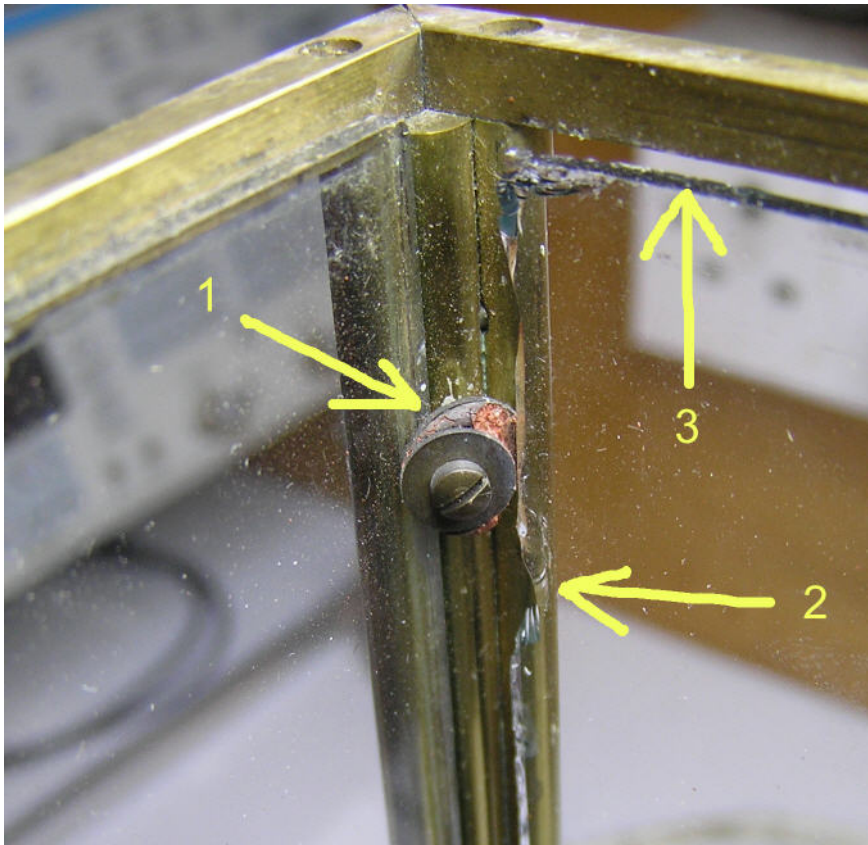
The woodwork of the top and bottom are pretty good and will only need a good waxing with maybe a bit of colour to revive the existing patina. The cord around the coil though is a different matter. On closer inspection it was found to be as dry as parchment and flaky when touched. So, unfortunately this will need to be replaced as it won't stand up to being handled in any way. The back has already been glued down with some form of superglue.

The coil itself read a healthy 1190 Ohms..

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The glass has a few problems. The screws that hold the glass in place have a soft rubber type washer which pushes safely against the glass shown with the arrow 1. This insulation is now rock hard and brittle. The glass is therefore rattling around free and at one point has been pinched by the brass washers that capture the rubber washer and shelled the glass quite badly as shown 2. The last point to note is that the glass is too short on one side. Maybe this is already a replacement piece.

So we have to look for replacement cushioning washers and maybe some new glass.

The colour under the label is consistent with the rest of the case work and is therefore probably all original. You can see the build of brass cleaner that's been applied over the years.

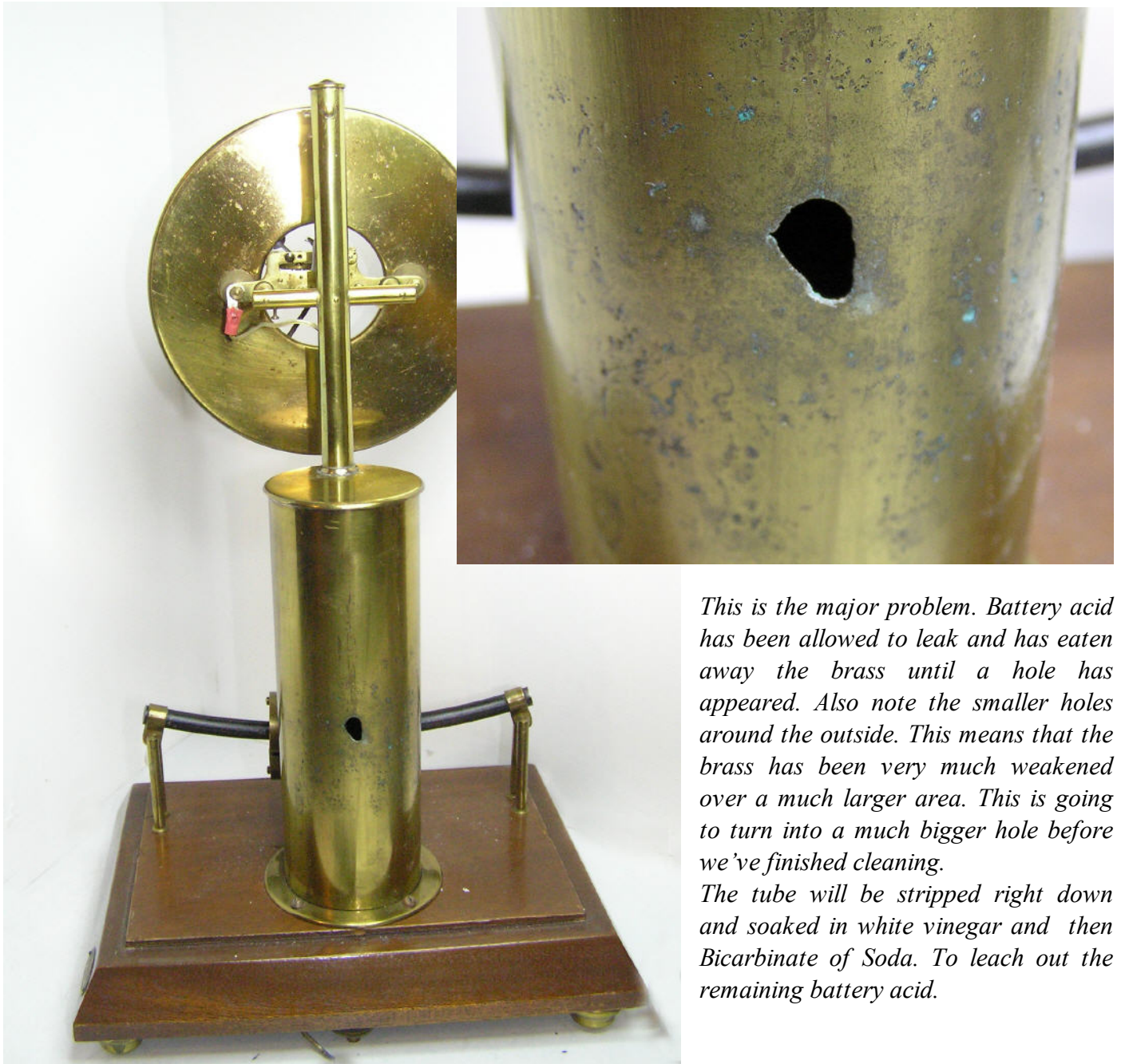
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This is the major problem. Battery acid has been allowed to leak and has eaten away the brass until a hole has appeared. Also note the smaller holes around the outside. This means that the brass has been very much weakened over a much larger area. This is going to turn into a much bigger hole before we've finished cleaning. The tube will be stripped right down and soaked in white vinegar and then Bicarbonate of Soda. To leach out the remaining battery acid.

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The case and brass frame stripped down ready for cleaning and polishing. All the parts were numbered beforehand so that reassembly will be easier.



The top and bottom of the case have different numbers which is odd. Most cases have the same stamps as they are usually matched at manufacture. But the wood and colour match perfectly so I think they must have been together since new.

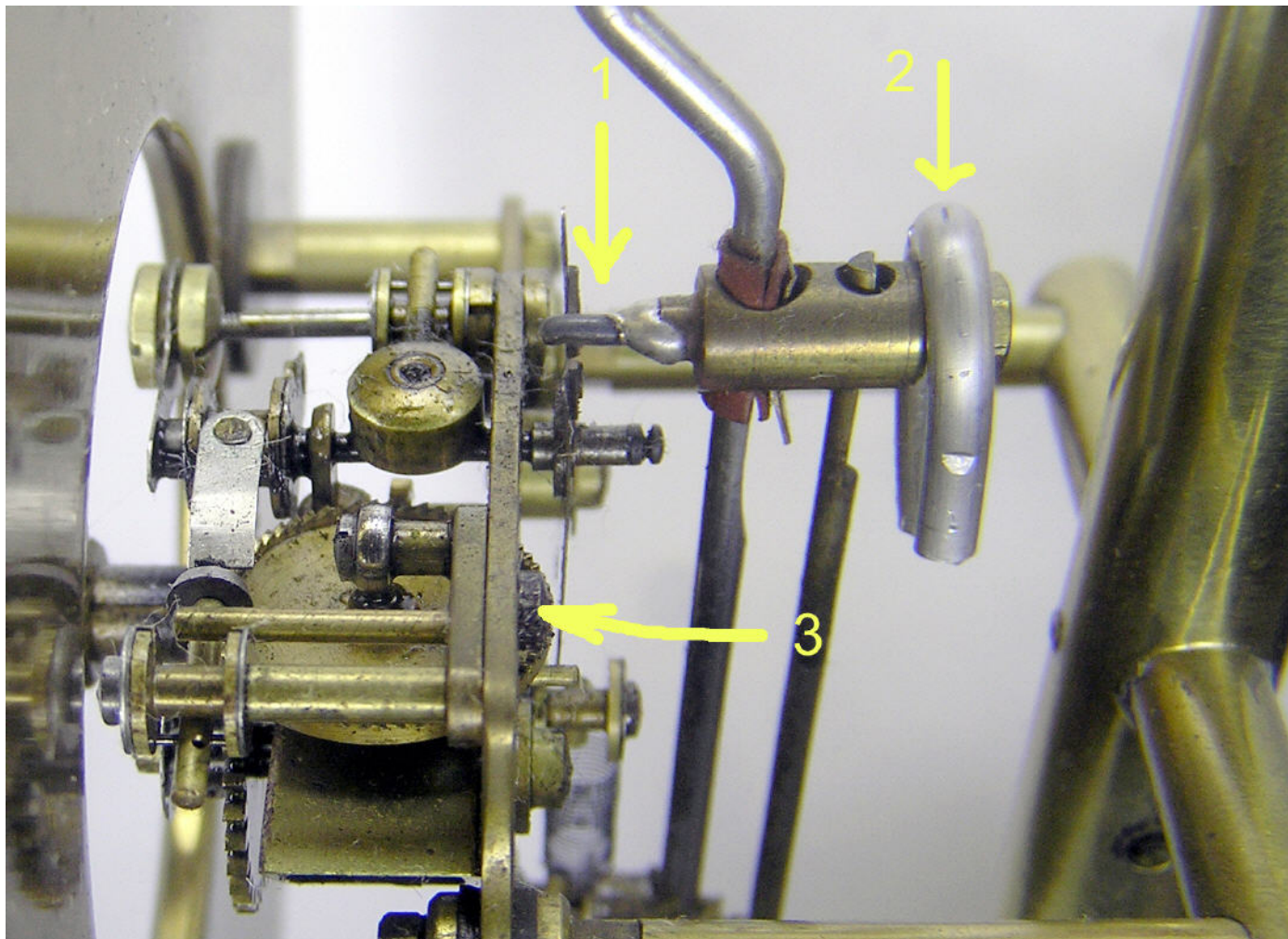
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A few points to note here. 1. The first is the silver contact pin is quite short and has been soldered into position in the pin assembly. This will have to be replaced. 2. There is a nice lump of lead wrapped around the bolt at the rear of the assembly. I guess someone was trying to influence the rate of the pendulum because the rating nut at the bottom of the pendulum was ineffective being wound fully to the top or bottom. 3. Note the thick oil deposits all over the movement. This has congealed and is like thick molasses. The count wheel needed a good push with the finger before it would move. The swinging pendulum would have had no chance to move this wheel.

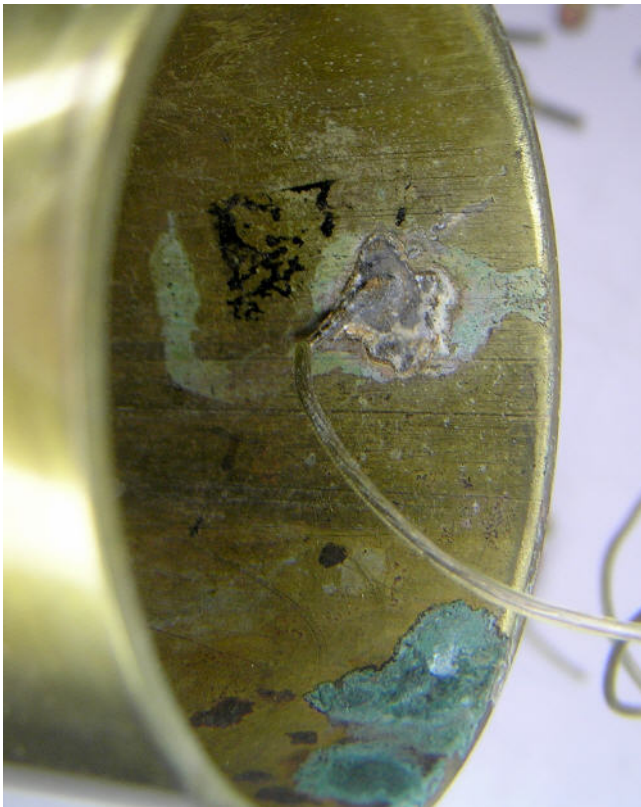
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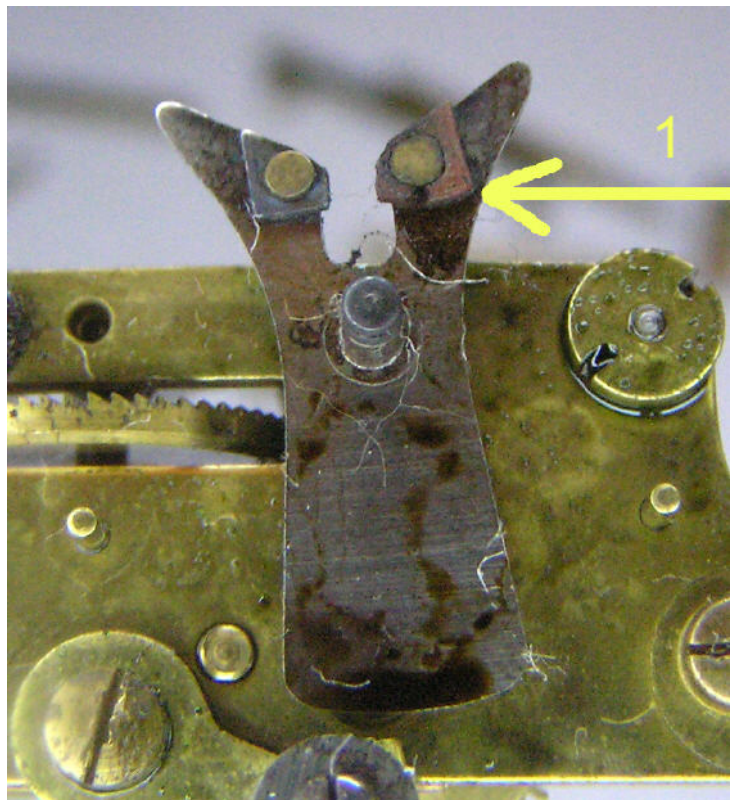
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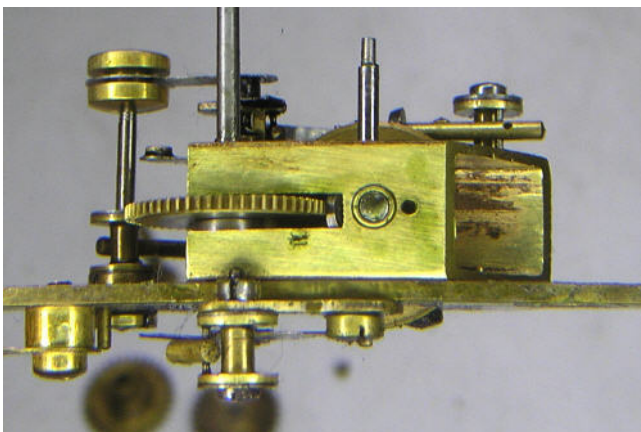
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The negative lead soldered to the inside of the battery stem.



Besides the thick coat of congealed oil, the fork contacts are also in a bad way and need replacing.



The end cap that provides a bearing surface and restricts the end play of the count wheel arbour is missing along with the screw. This would allow the arbour to fall until the count wheel engages with the movement plate and causes excess friction that will stop the clock. It also positions the wheel correctly for the pawls to engage at a consistent angle. Another replacement job.

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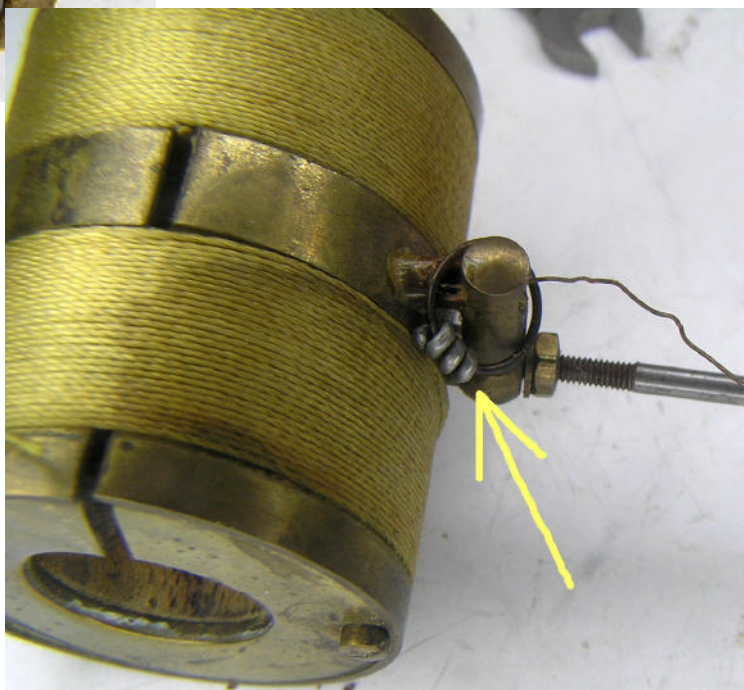
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The coil removed. Note the corrosion taking place where the copper wire is in partial contact with the brass coil cover. The wires will be cleaned thoroughly before re-assembly. The coil though is still holding it's own with a healthy reading that hasn't wavered since the first reading when the clock was received.

Hello! What have we here?

A string of small lead weights. The guy must have had real problems in trying to regulate this clock. He's tried to hide them on a little necklace that's partially hidden by the coil cover assembly.



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The battery cover after soaking and cleaning. The hole is now much larger and the whole area is paper thin.. The battery acid has now been removed and brass will not deteriorate further. The acid has eaten its way to the seam of the rolled tube and clearly shows the joint. In a polished tube this would not be noticeable at all. But it is interesting as it shows how the tubes were manufactured.

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This photo shows the extent of the damage from the inside. The whole area is very thin and weak. The seam has been opened up by the acid attack.

I will keep this tube and perhaps experiment with ways to effect some form of repair that would hopefully not be too obvious from the outside.

Meanwhile I have separated the tube from the rest of the stem(as seen below) and have replaced it with one from a clock that I have had for a while that has a damaged column but the tube is in a reasonable state. There are a few marks in it from acid burning but nothing in comparison to this one. Besides, we don't want it too look new and therefore stand out like a sore thumb.. So with a good clean up I should be able to set up a jig to hold the parts together whilst soldering the parts.



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The new tube in place with the original column.

The only thing to do now is to correct the drop of the movement support arms that is quite evident in this photo (arrowed). This is a problem with the horizontal arm that is riveted through the main column. This particular one has been redone sometime in the past with a brass rivet that is too small for the job. A new steel one has been made and the result can be seen in the photo on the right. The column and stem have been cleaned and polished and match very well. There are a few marks left in the column but this matches well with the rest of the clock.

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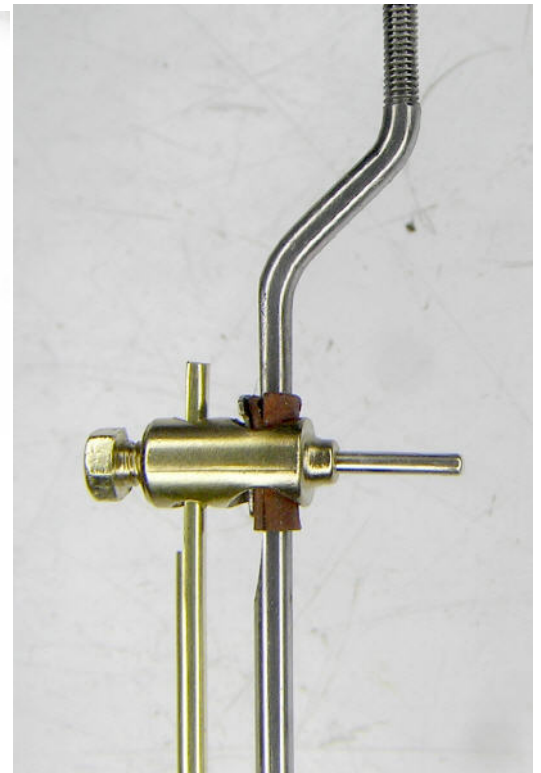
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The solder has been removed from the contact assembly and a new pin made. The assembly can be seen on the right in place on the pendulum . A new steel “T” piece has also been made and fitted.



These two photos show the finished base of the clock and the pendulum bob after re-assembly and binding with new cord.



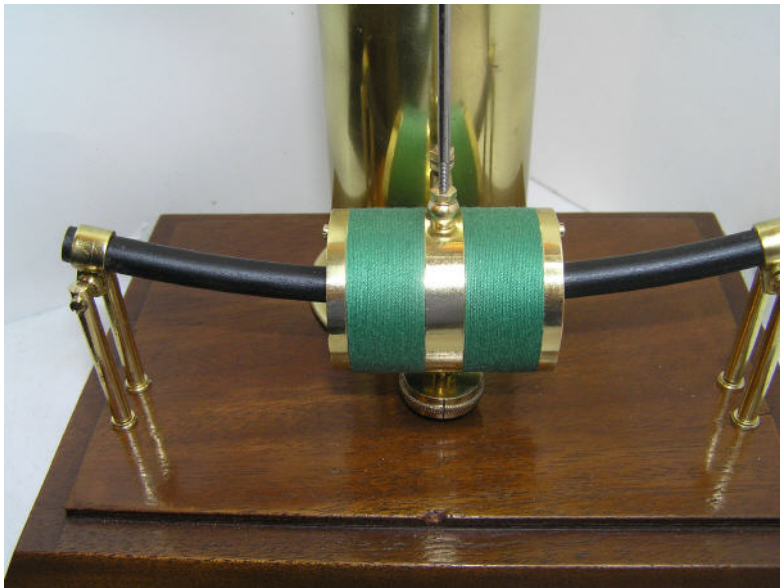
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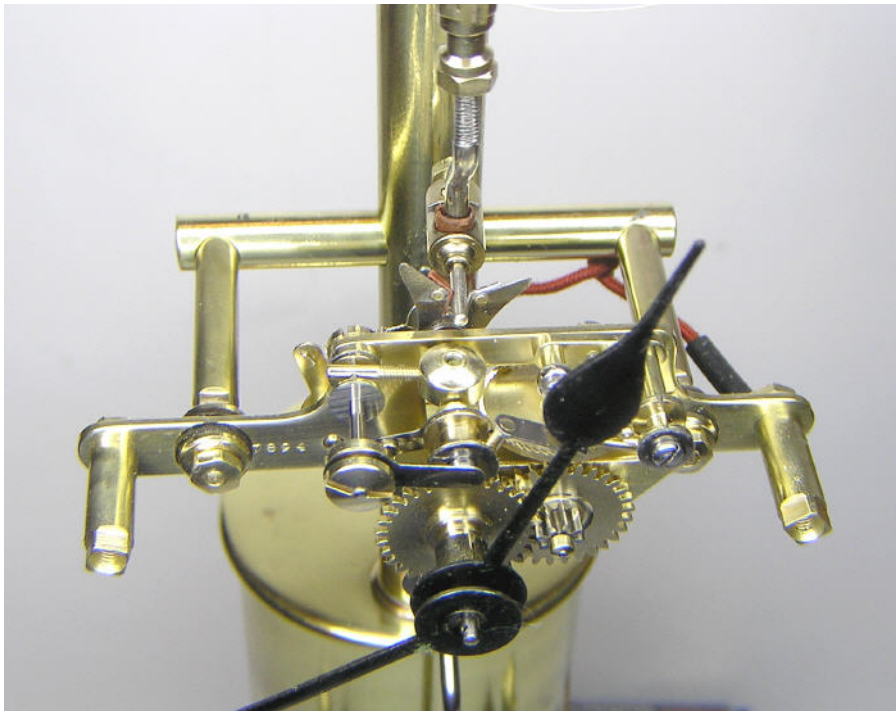
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The base, pendulum and magnet re-assembled.



The movement now back in position with the column and on test with the hand attached temporarily while rough timing trials are conducted. This is the time when the action of the new fork contacts are tested as well as the length of the pendulum. If all goes well then the dial and hands can be finished and attached. The clock then goes on test for about a week for fine tuning.

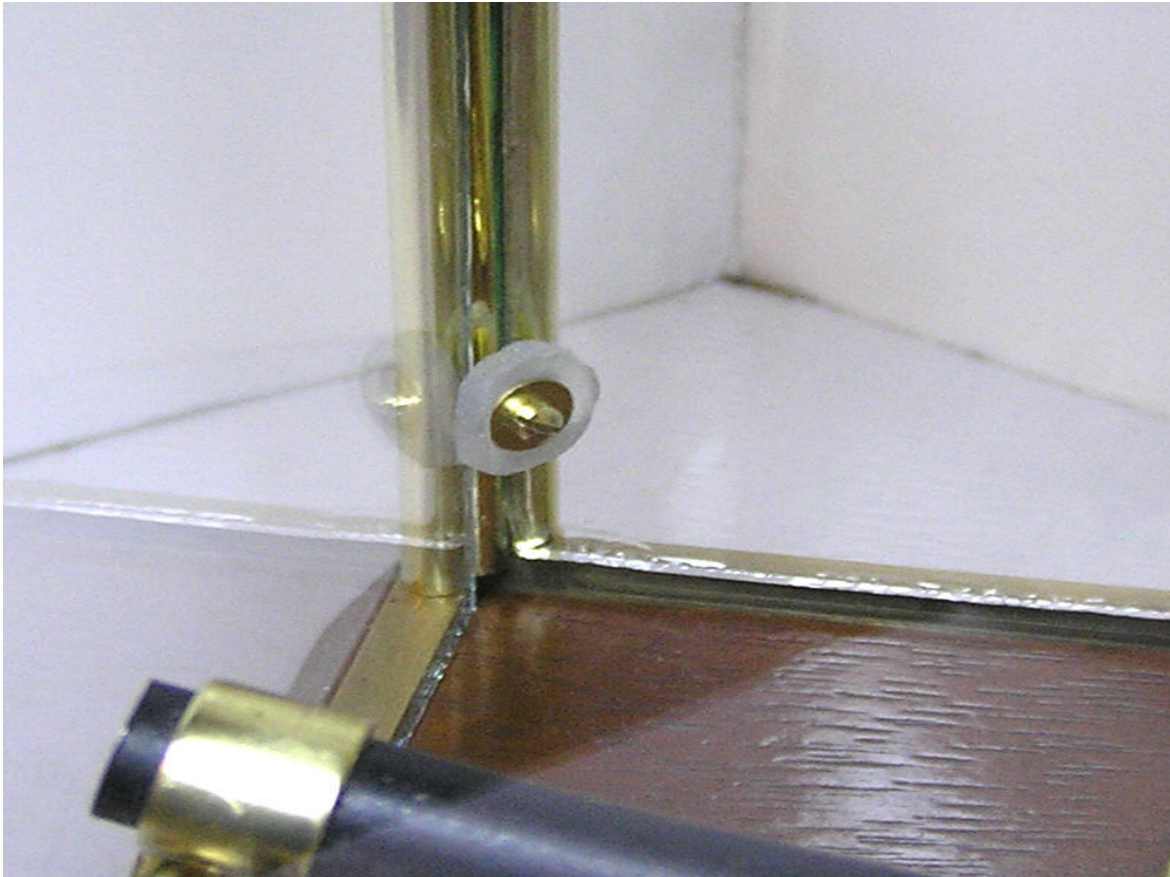
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The rubber mounting between the glass retaining screws and washers was rock hard and disintegrating badly. I needed to replace it with a material that was both strong but very pliable so that it would both retain the glass and yet bend easily to take the shape. I looked around and found the very thing. I sliced up sticks of glue that are used with the Hot Glue guns. This has proved very effective with the added advantage of being reasonably clear and therefore less intrusive when the clock is viewed from the front.

The glass itself was very quirky in that it has a number of air bubbles and blemishes in it that modern glass does not have. I thought it better therefore to keep it with the clock even though one corner is shelled. The problem is that each piece is bowed quite appreciably from top to bottom. This therefore took some time to refit it comfortably without cracking or shelling it further. The glue discs proved their worth here being strong and very pliable easily adapting to the misshaped glass.

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Rear and front views of the finished clock. No holes anywhere!

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The finished clock.

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