

<h1>Horologix</h1>		<p>The place to come for all your Bulle and Eureka restora- tion parts.</p>	<p>Contact Peter Smith Telephone 01454-880825 Or Mobile 07969-773480 Email peter_smith@horologix.com</p>
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Bulle Clock Serial Number 3720

Restoration of Bulle Clock Serial Number 3720

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*This clock is a tall move-
ment on a round wooden
base under a glass dome.*

*It is from my own collection
and interesting as an early
example with a perfect dial.*

*The movement is a single
plate movement dating to
the first year of production
1921. The coil casing is a
brass shell which originally
was wound with green cord.
In this clock the cord is
missing, probably pulled off
by the previous owner be-
cause it had rotted or dis-
coloured.. The time is
indicated by elegant moon
hands painted black The
majority of these early
clocks had painted hands
although blued ones are not
exactly rare.*

*All the important features
and parts of the clock are
original, although the base
has had a hole drilled in the
top near the front which has
been filled in at a later date.
I could find no reason why
the hole was formed in the
first place. The whole base
will be cut back slightly and
re-polished to it a "used"
feel consistent with its age..*

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The clock in it's partially disassembled state



The fork has obviously had some attention in the past with a new piece of fibre added at some point. The silver contact also looks like a replacement. The fork arbour and fork itself look OK.



The silk suspension unit is missing and has been replaced with a steel spring. The special screw and nut have obviously gone with the suspension and a standard screw and nut used instead. The missing parts will be turned up on the lathe.



The contact pin assembly is missing the original fibre insulating sleeve. A piece of plastic tube has been used instead. The original fibre will be replaced.



The pendulum Isochron suspension bracket is all original including the cloth insulator. The rust is of no importance and will be polished away.

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The original English label is showing its age but is still intact and will not be touched other than a dust off. The two pins securing it to the base are also original and will not be touched.



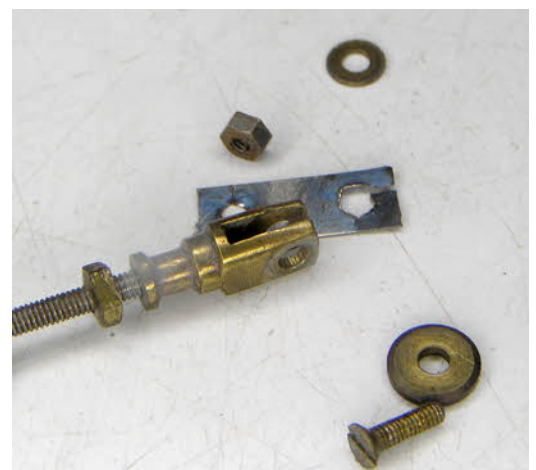
This photo shows the silver contact pin has some slight wear but this will easily be polished out and will be good for another 30 years



This photo at left shows the holes left by the original 1mm brass band that wrapped around the base with the ends hammered in the back to retain it. Not all clocks had the band and careful inspection is needed to verify the use of a replacement



The photo above shows the original moon hands with the remnants of black paint still showing. These will be cleaned and re sprayed.



This photo shows the suspension parts in more detail.

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The disassembled count wheel stop return unit. This is an early version which was later replaced by two other versions before finally being replaced with the two pawl system. The only thing missing is the stud that jugged from the arm to stop the driving pawl tipping out of contact. This is easily made and will be refitted.



The damper and end stop unit disassembled. The damper itself is further disassembled below. Note the cord which filled the bowl. This was original dampened with a little light oil. The cord is exactly the same as that which covered the coil casing and will be replaced with fresh cord.



All the parts prepared for cleaning in the ultrasonic bath.



The rating nut was found to be modified by someone who didn't understand the clocks function and tried to lighten the pendulum to induce a faster rate. It will be repaired

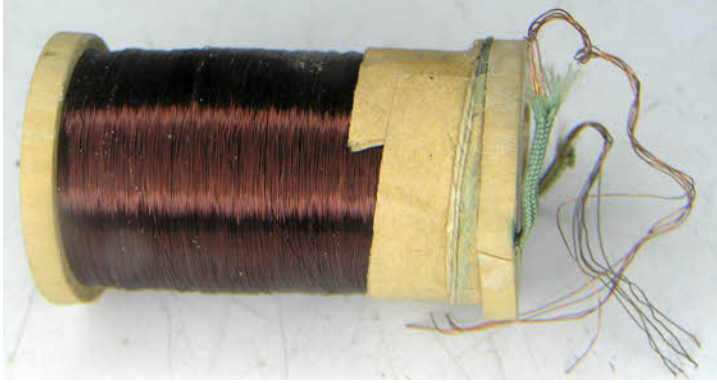
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The coil was found to be dead and showed no resistance whatsoever. After pulling a few hundred turns off and rechecking, a resistance could still not be found. There was no choice therefore other than to unwind the coil completely. The fault was then found to be the end of the coil separated from the lead out wire.



A new coil was then rewound using the original lead out wires and 6500 turns of 42 swg enamelled wire. The coil was then tested and found to read 1150 Ohms. The original paper wrap was also reused as seen in the photo at left.

This clock is a very early example and it seemed a shame that the coil casing had the original cord removed. Now I could have wrapped it in new cord as per the original colour but I just happened to have a casing with a good cord still intact from another clock of the same year. The casings are identical.



This particular example had come from a clock that I had restored in the past but the owner had wanted a new cord covering as this one was, in his opinion, tired and straw coloured. I did not want to destroy this cord so I negotiated at the time to keep his casing and supply one bound with the replacement cord. The one supplied was again from the same year and identical in all dimensions and style. This offer was accepted. I kept the casing in case I ever came across a deserving clock. This was it. The problem is in trying to clean the brass without damaging the cord. Sometimes the cord is so fragile that falls apart at the slightest touch.

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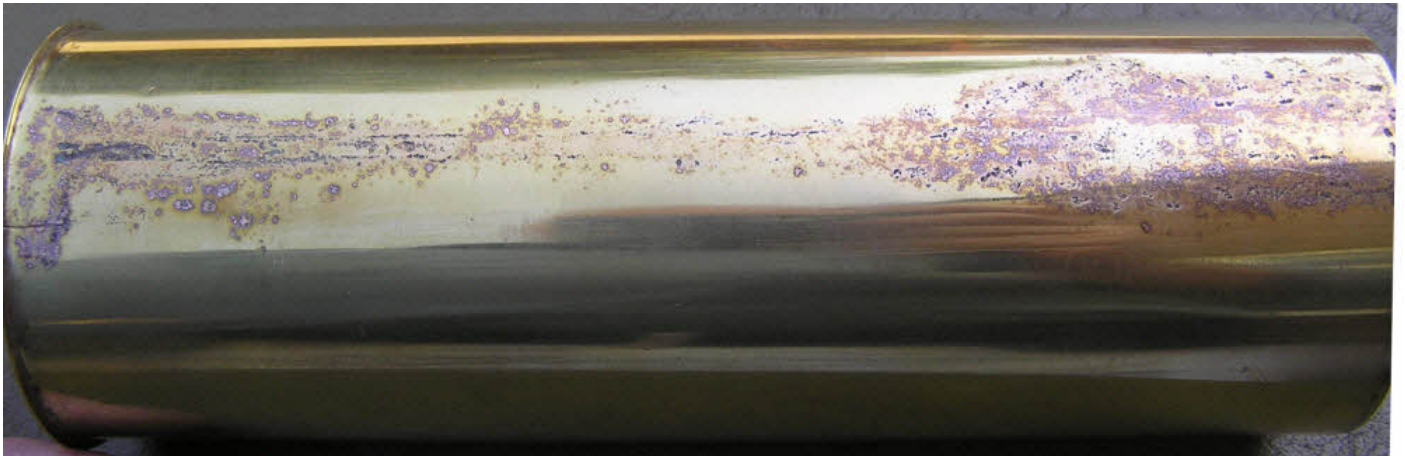
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The cord is wrapped in a masking tape with a "gentle" adhesive that will not pull hard on the cord as long as it is applied carefully and removed with a couple of hours. The casing is then cleaned and lacquered before removing the tape. If you're careful and lucky then the results are very pleasing if, like me, you prefer the aged and faded straw colour. It's not to everybody's taste.



On initial cleaning of the column, the soldered seam at the rear shows signs that the zinc in the brass has been corroded to leave areas of copper and pitting. This has not been caused by acid eating from the inside. It is probably caused by the original manufacturer not cleaning off all traces of brazing fluid when the joint was soldered. The area in question is at the rear and will of course not normally be seen. It will also fade down slightly when polished. The question is do we keep it or replace it? Structurally it is sound. It will not get any worse once it has been cleaned. And it will only be visible from the back. So it will be kept as original.

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This photo shows the process of re-soldering the components of the column and top plate. The plate was loose on the tube so it was removed and cleaned before soldering back in place. The top frame was then added and soldered. The tube is actually upside down with the top plate wired in position.



The small steel screw that holds the Isochron bracket in place was found to be fractured and broke when removing. The photo above shows its replacement.



This photo at left shows that although the steel parts look corroded or rusty it is in fact just caked oil and dirt and was easily removed with acetone and a small soft rotary wire brush.



The base had shrunk such that it curved front to back as shown by the arrows. This means that a glass dome will be difficult to fit because the groove will now be slightly oval and not flat. Luckily I have a dome that is also not quite round and it fits in one direction. The photo also shows the new band in place.

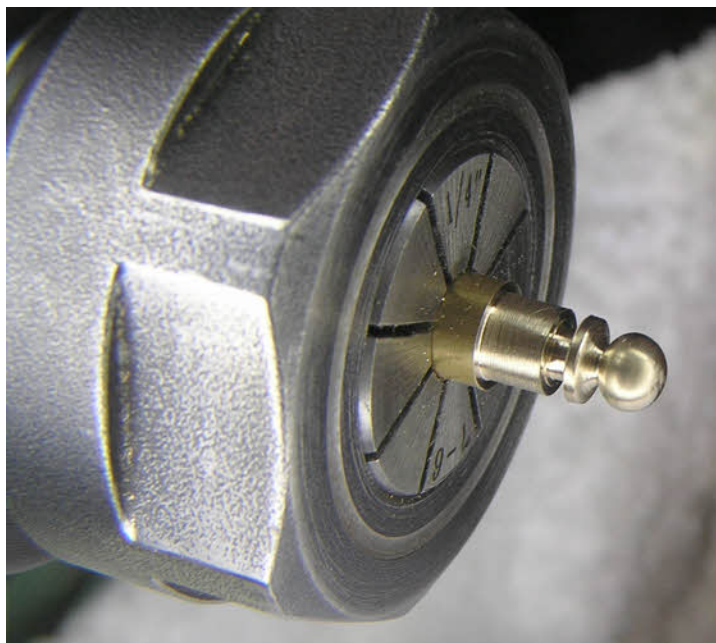
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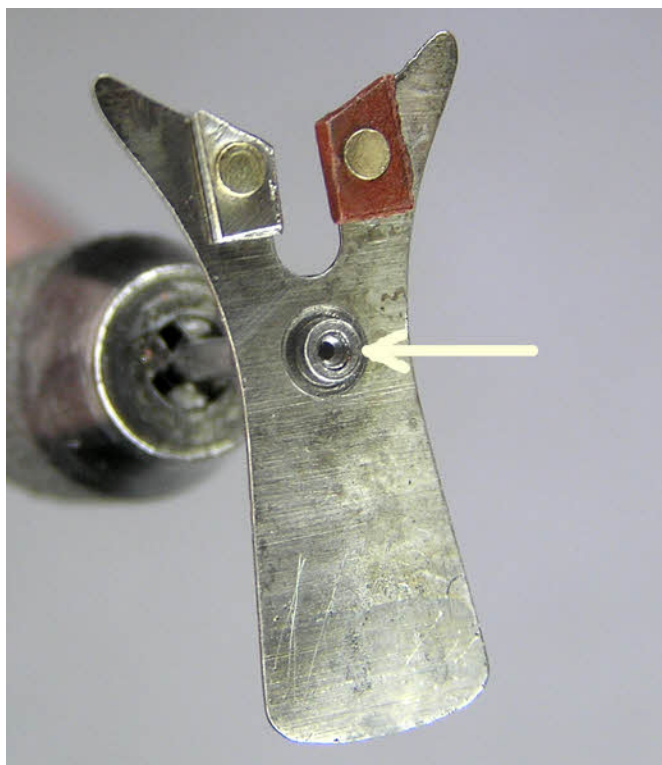
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The battery compartment cover was missing and a new one made from mild steel plate. The second photo shows a stage in making the brass button knob for the cover.



The new silver and fibre contacts for the fork are shown riveted in place in the photo at left. You will note that the silver button for the contact spring to roll in is missing. It was loose and had fallen out when being cleaned. The cavity was cleaned out with acetone and the pin swaged to be a tight fit and riveted back in. The whole arbour was then checked to be sound mechanically and electrically..

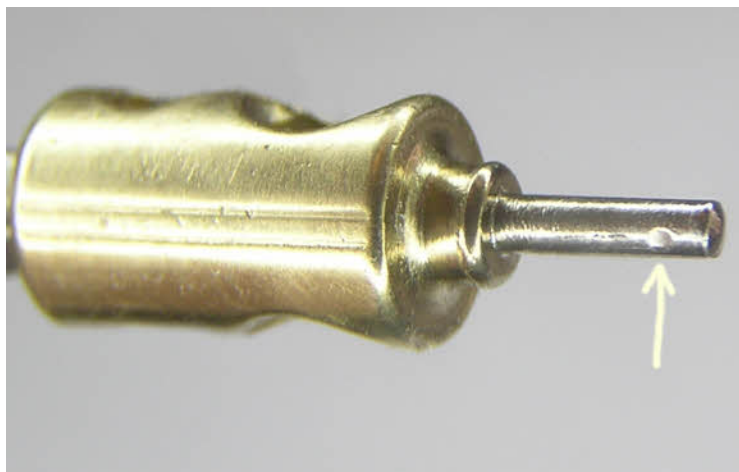
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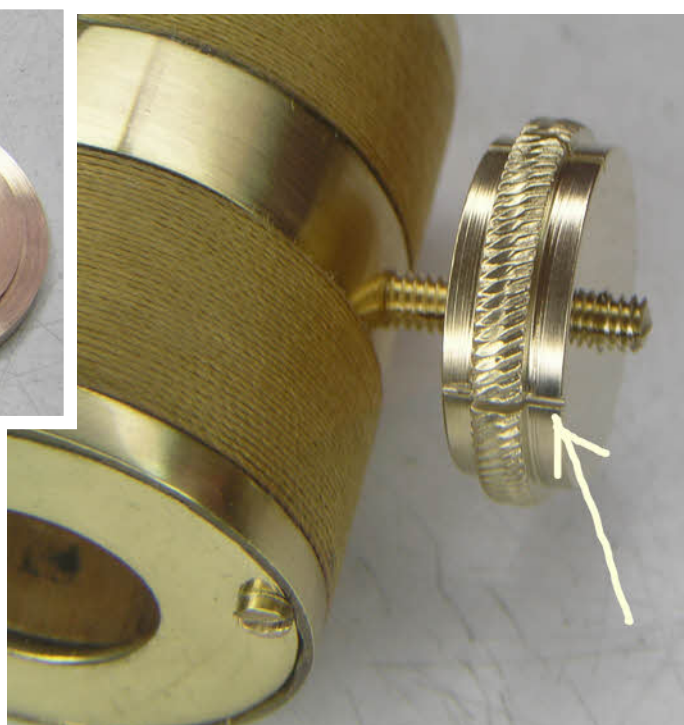


The contact pin was polished to remove most of the wear and all that remains is a small blemish. But this doesn't matter as the whole assembly was re-attached to the pendulum upside down and a new face presented to the fork.

The two photos below show the new stud added to stop the impulse pawl from lifting.



These last two photos show the insert made to fit the rating nut. It was turned to fit the cavity and then cemented in position with Loctite 603 retainer. The existing slots were then extended across the new insert such that it is nigh on impossible to see the join. The whole nut was then polished. The thread was not in good condition so it was touched up by passing a tap through it.



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The new studding and nuts for the top pendulum suspension bracket.



The base polished with the label back in place and brass banding.



The base with magnet and pendulum . Note the 1/2 inch plug fitted at some time into a drilled hole. I still can't think of a reason for it be there. Still it's a part of the clocks history and doesn't detract from the aesthetics of the clock.

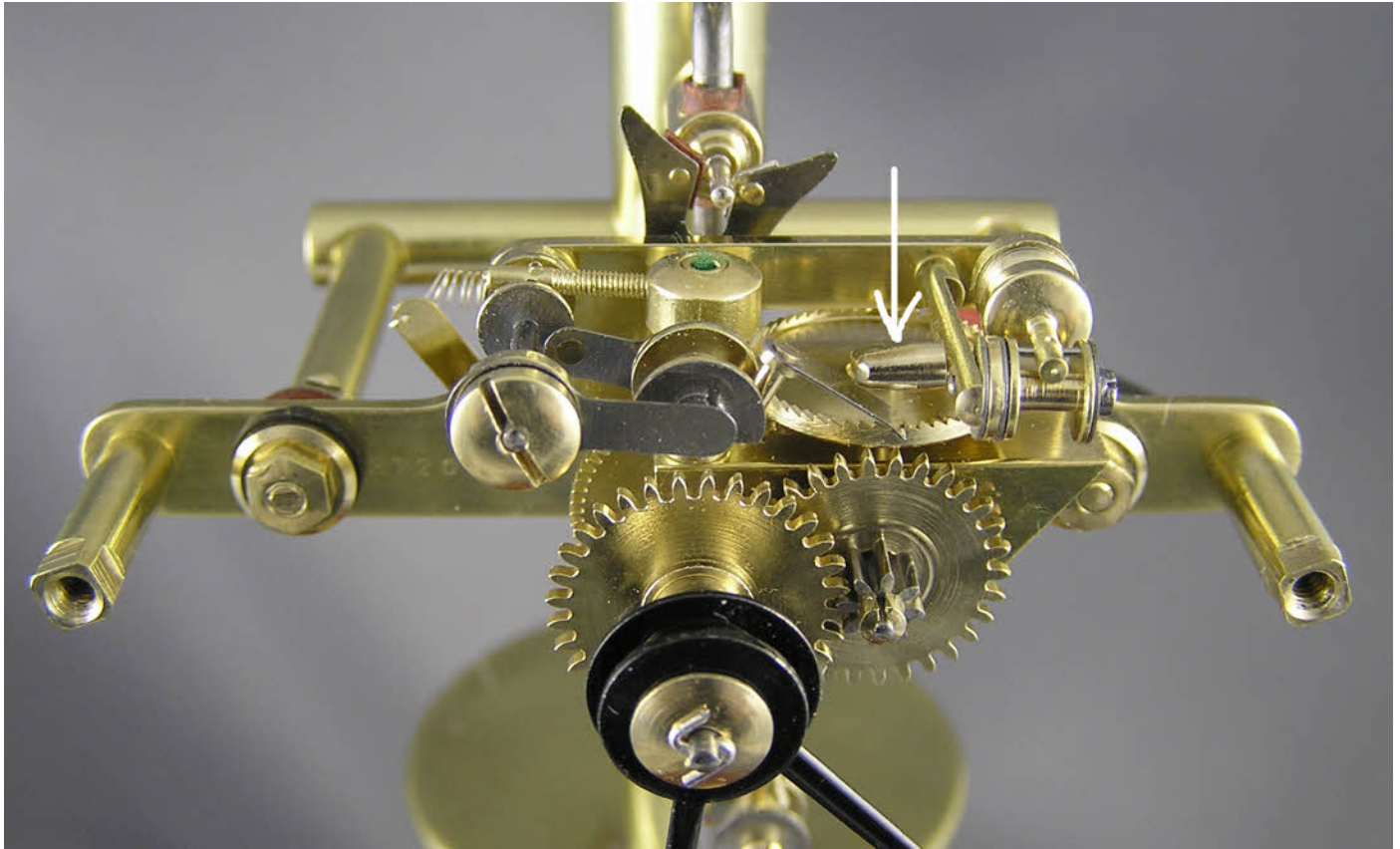
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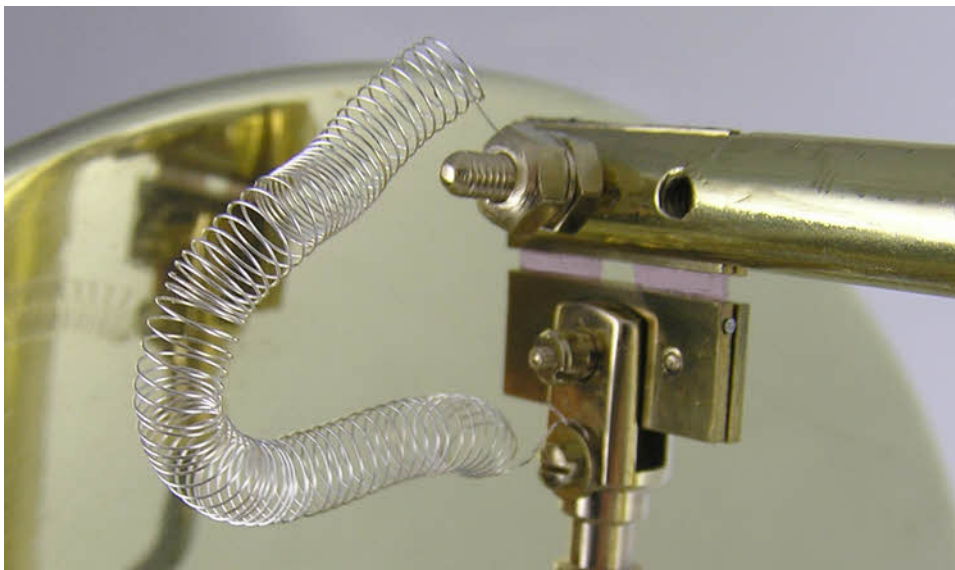
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A view of the cleaned movement back in place on the frame. Note the new stud protruding to stop the driving pawl from rising (arrowed)



The coiled contact wire that ensures continuity of power across the silk suspension. There is some conjecture over the original method of bridging the gap, but as there are no surviving documents or photographs of an original clock that show this are in sufficient detail we will have to devise our own methods bearing in mind the attachment points existing on the clock.

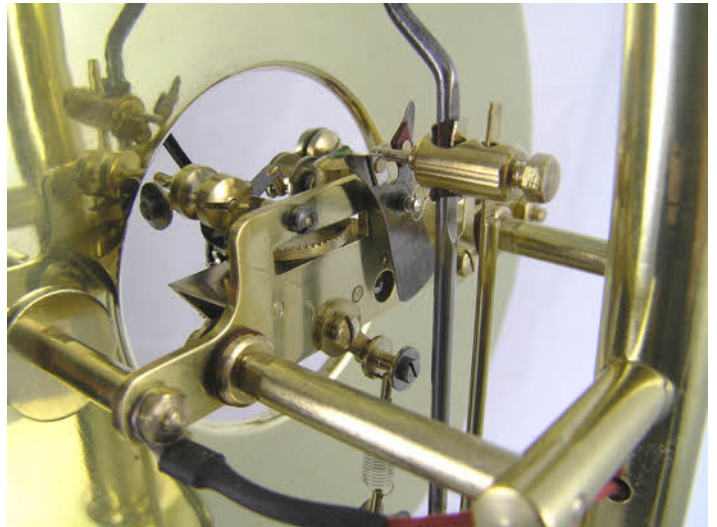
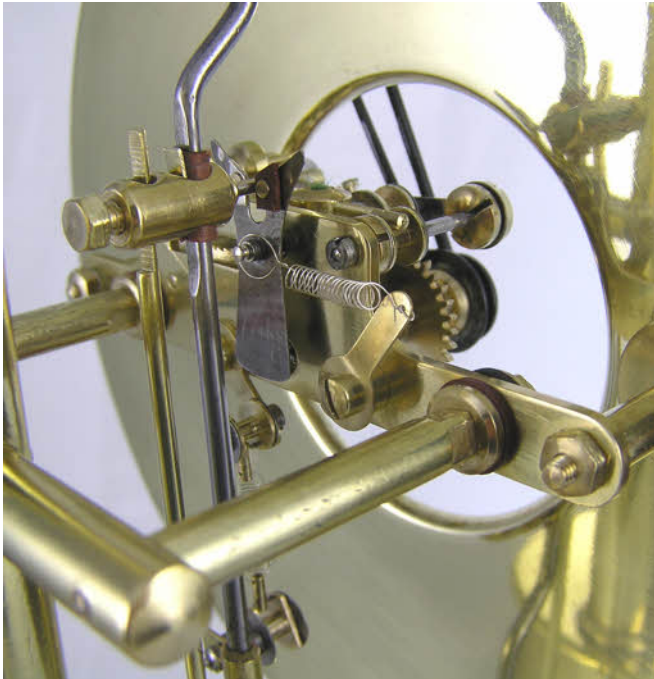
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*Some views of the restored
clock.*



*The dial is a particularly
nice example with no marks
or flaking.*

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*Two views of the rear of the clock. Note
the pitting in the column is only appar-
ent from the rear.*

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The finished clock