



Bulle Clock Serial Number 183374. *(By kind permission of the owner)*

Restoration of Bulle Clock Serial Number 183374.

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Early Battery Clock Parts & Restoration

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The clock as delivered.

This clock is in for a full restoration and is of the short type on a Bakelite base.

The first thing to note is the filled hole at the front of the Bakelite base. This is the result of someone's attempt at fitting a screw on the underside. They Chose a thin point in the Bakelite and drilled (see inset photo) all the way through to the top where the material flaked off in a large chunk. They have then stuffed it with filler. Obviously not too successfully. To cover up the mess they have then re-sprayed the surface with a purple paint. We shall have to see what we can do about it. The first thing will be to strip of the paint layer and see what condition the Bakelite is in underneath. The dial is in good condition but the silvering has worn off the outer chapter ring.. This will be re-silvered.

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The photo at top left shows that one of the feet has been replaced by a steel screw. A new screw will be turned up to the same design as the other two in brass (above). The remains of the silvering can be seen on the outside of the chapter ring in the photo to the left. The photo below not only shows the paint flaking off but also how it must have been sprayed with the brass column in place.



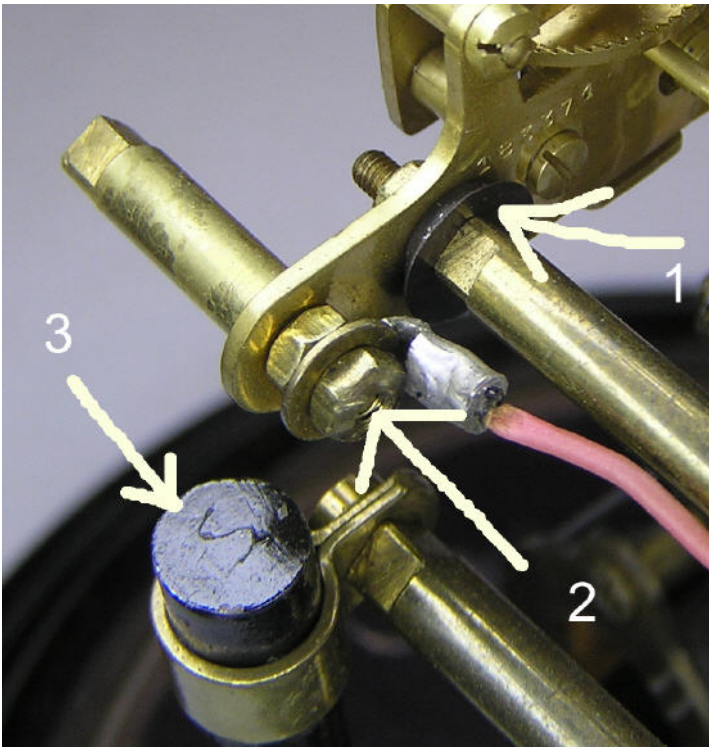
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The two shaped brass washers that should be sitting either side of the movement insulation washers are missing and seem to have been replaced with thin metal shim that has been sprayed black (1). The photo below shows the detail once the movement has been removed.



Note the extra nut used to secure the positive lead to the main movement frame. That means there is probably one missing from somewhere else on the clock (2).

The photo below shows a steel nut used instead of the original brass one.



The letter "S" scribed onto one end of the Bar magnet has a matching "N" at the opposite end. I have checked the poles with a compass and they are in fact both South as they should be. The North is at the centre. So why they have marked it this way I have no idea. Perhaps it was just a way of marking it to facilitate re-assembly. But of course with a Bulle, it makes no difference which way round you position the magnet as the poles will be the same at either end (3).

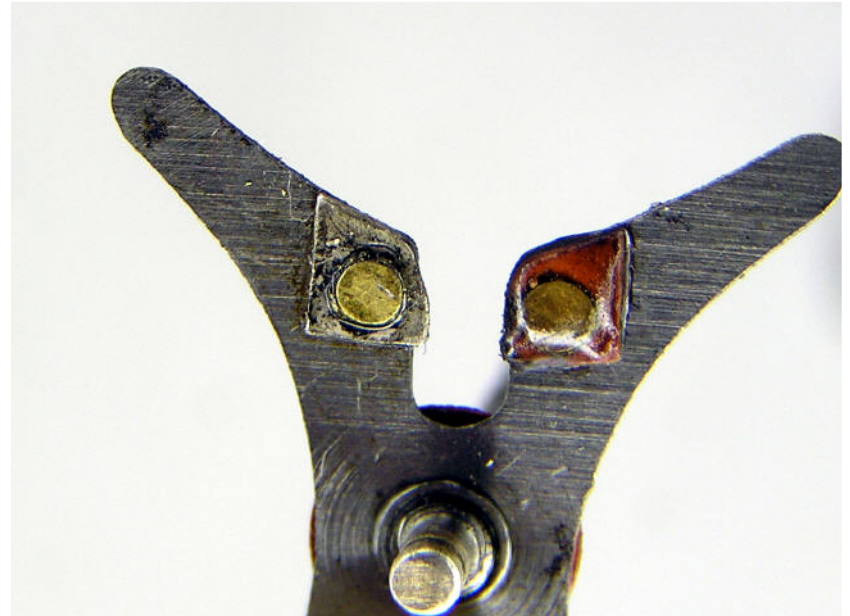
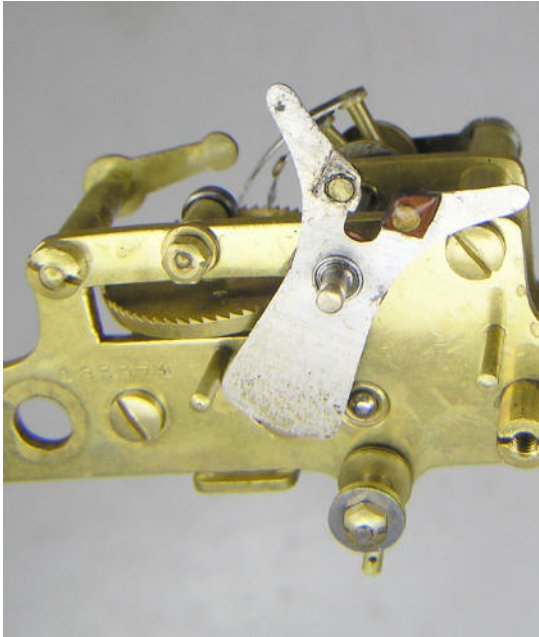
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This group of photos shows the state of the fork contacts. The silver contact has a notch worn into it that reaches right down to the steel of the fork itself. Whilst the fibre has been "Supplemented" with what I can only guess is Araldite" or some other epoxy type substance. Why? I don't know. Perhaps the fibre also had a notch worn in it. So both the fibre and Silver will need replacing.

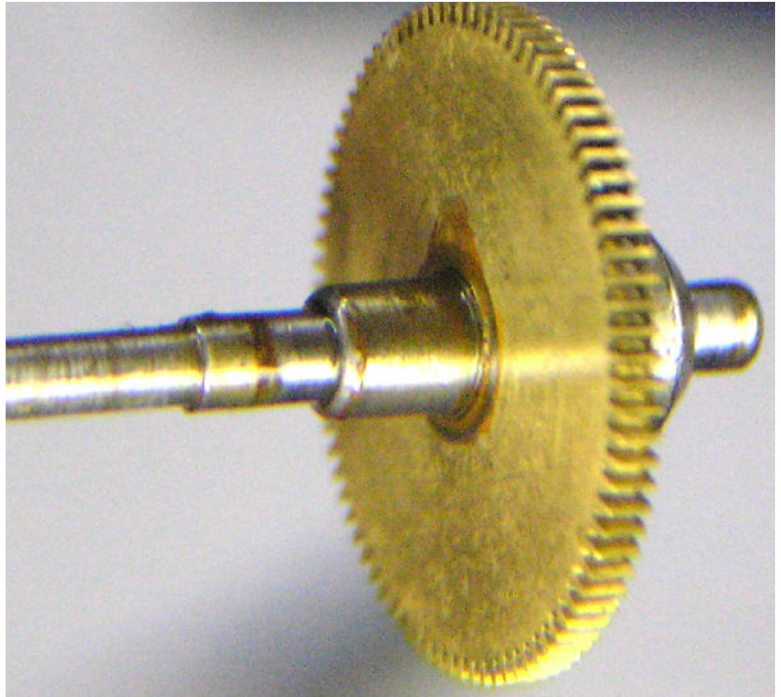
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The clock must have been damp at some time as the rust in these photos show. But it doesn't look very bad. Certainly not enough to produce pitting.. All the steel work will be polished and the pivots burnished.



Once the movement has been stripped down it is easy to find and check the serial number.

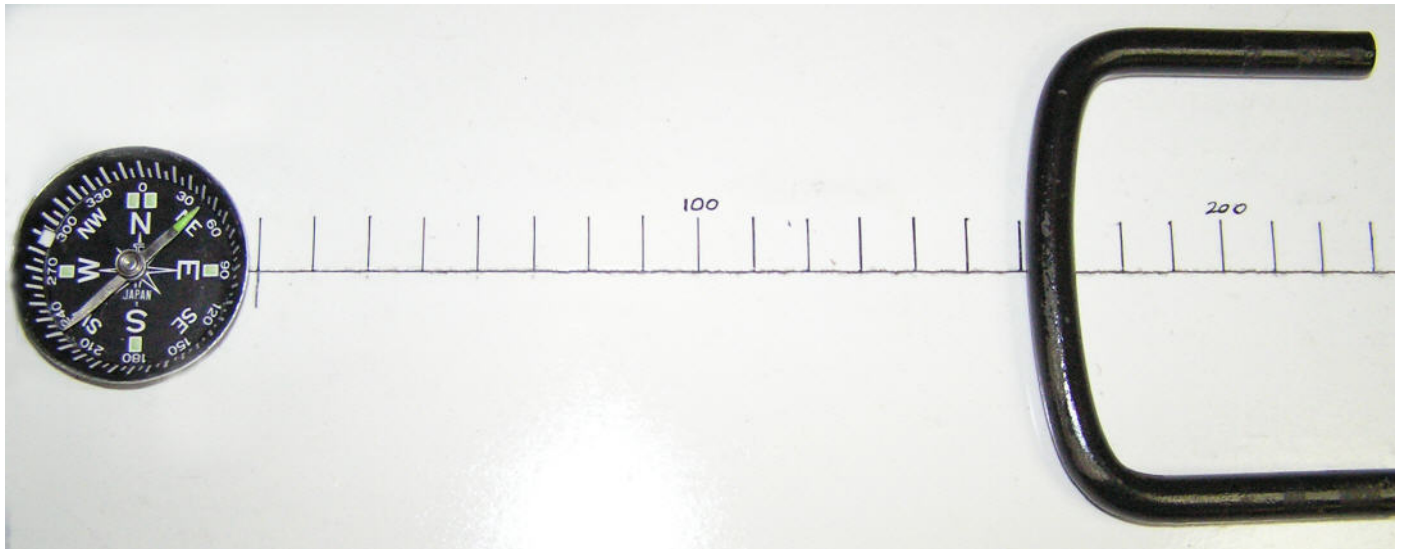
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The magnet was a little weak showing only 160mm on the magnetometer. It will be regenerated to reach at least 180mm when the compass needle reads 45 degrees.



The coil gives a satisfying 1160 Ohms resistance although the wiring and wax covering are very brittle and prone to breakage. I will probably need to replace these. The cover will be cleaned and re-sprayed black.

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The Bakelite base after removing the paint and given a good polish. It is in excellent condition bar the botched and filled screw hole. Unfortunately the hole is right at the front of the clock in eyes view and no amount of filling will disguise it. It would also be a pity to spray it and cover up that lovely sheen of brown Bakelite. So I think the best solution is to cover the hole with an old Bulle label as seen in the lower photo. I will adjust its position until it is dead centre and symmetrical with the clock movement. If the hole had been more to one side of the other then this would not have been a suitable remedy as the label would of been off centre and looked odd.

Compare these photos with those at the beginning of the restoration.

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The clock stripped and prepared for the Ultra Sonic cleaner. The parts are roughly graded by size. The smallest parts that are easily lost are placed in the fine mesh holder that looks like a double Tea strainer. The handle acts on the opposing mesh covers and clamps them tightly shut. Nothing is going to escape from there. The next are placed in the open fine mesh cup. Finally the largest parts are placed in the standard wire basket that comes with the tank.



The photo at left shows the missing screw foot has been turned on the lathe to match the other two. When all are cleaned and polished it's hard to tell the difference. Hopefully no one will!

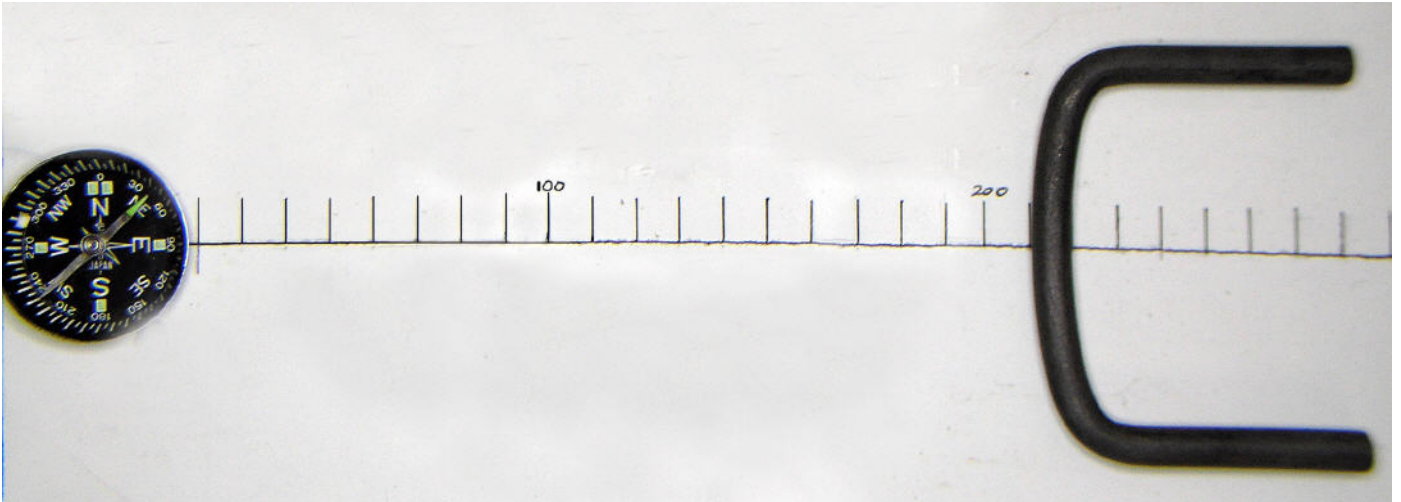


The photo at right shows the fork after the new silver and fibre contacts have been riveted in place and roughly shaped. . All that remains is to check for electrical consistency between the silver and the arbour then finish and polish the faces for smooth contact with the pin.

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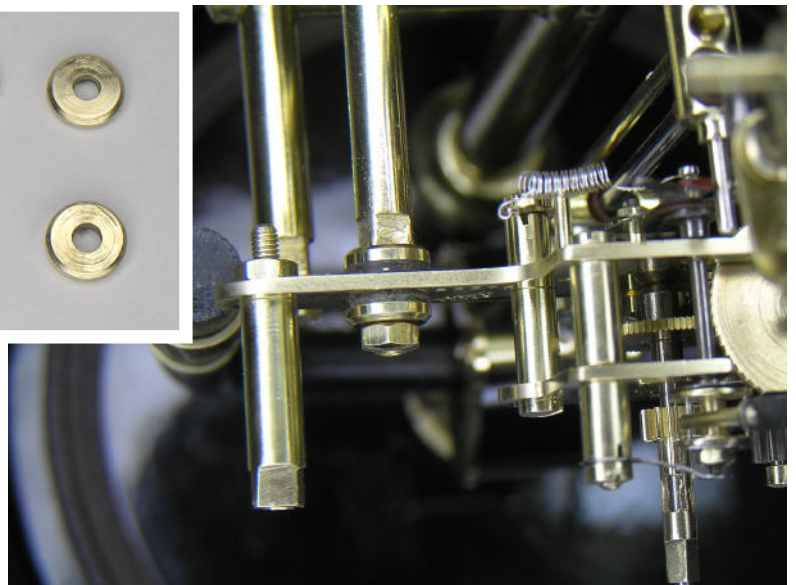


The bar magnet on the Magnetometer after regenerating the South-North-South poles. Note that the magnet has had to be withdrawn to 210mm to offset the compass needle to 45 degrees. A strong and very healthy magnet. The simple principle of this magnetometer is explained in the Restoration of Bulle clock serial number 186300 and 12199. Both are available as pdf downloads in the [Downloads section](#).

The four new spacing washers. These can be seen in their correct position in the photo at the far right. They sandwich the insulating washers that separate the main movement plate from the frame.



The photo also shows the Silver Contact spring in position. This must be tensioned very slightly to give a forward pull to the fork arbour. This encourages the arbour to move forward against the steel stop at the front of the clock.



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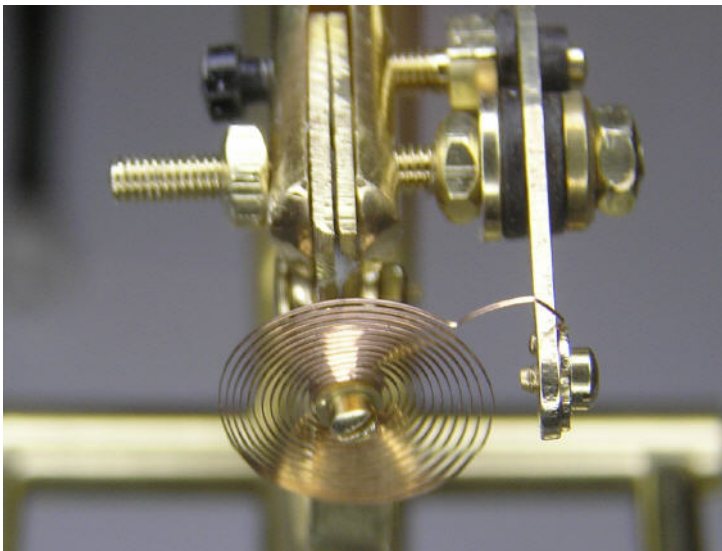
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The arm that carries to the current to the Spiral torsion spring is shown in position. The arm is tested to make sure it is correctly insulated from the frame. The long threaded rod also secures the silk suspension and must be positioned carefully before tightening as the suspension must be held securely here and not allowed to rock in any direction. The small blued screw at the rear, in conjunction with the insulated bolt on the opposite side finally trap the top of the suspension and prevent any vertical or sideways movement. The spiral torsion spring can now be fitted to the pendulum and connected to the small screw at the end of the arm.



The new Spiral Torsion Contact spring in position at the top of the pendulum. The spring has no other function other than to provide electrical continuity so its characteristics as a spring are completely irrelevant as long as it's long enough

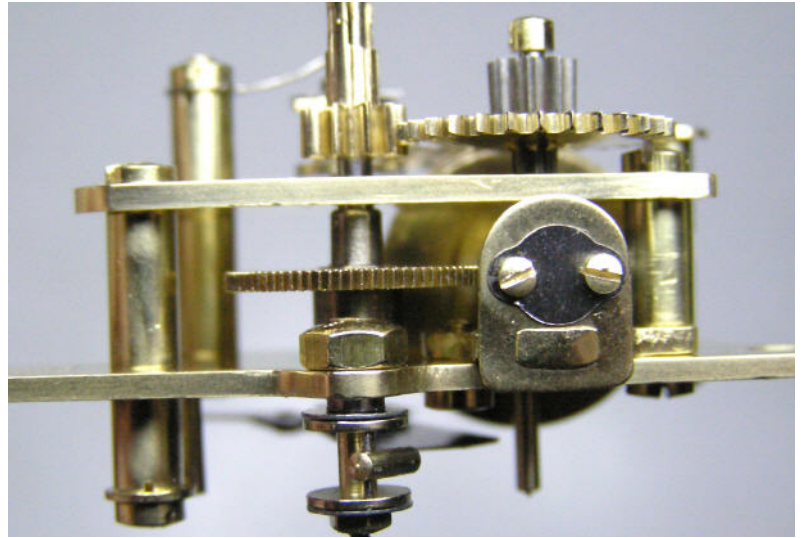
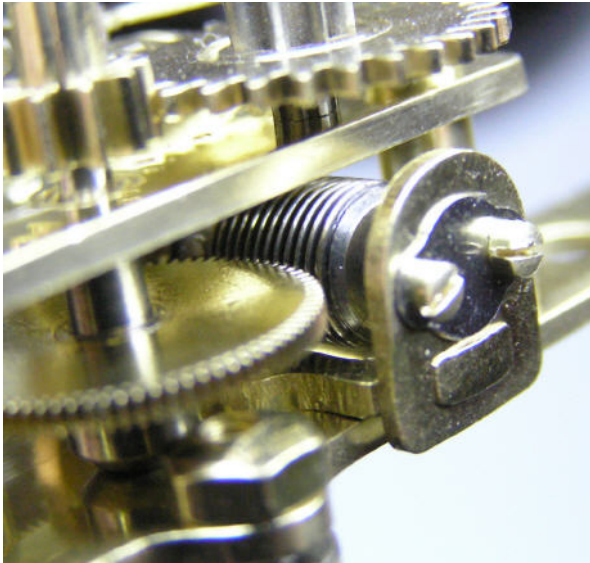
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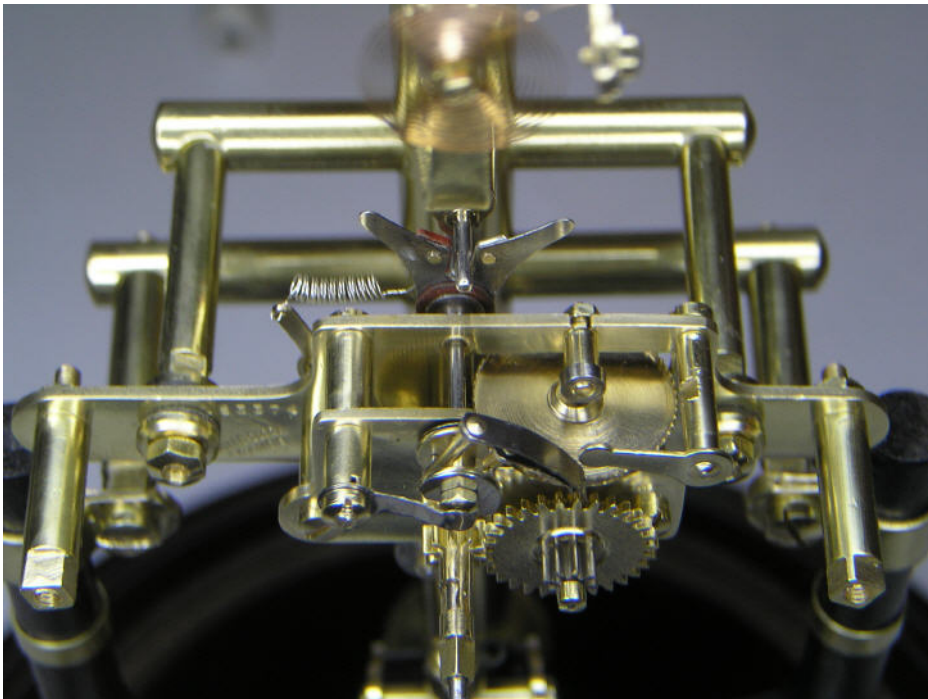
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The worm wheel and minute arbour cleaned and in position..



The completed movement in position on the frames. The contact assembly has been adjusted to sit with half of its diameter in the fork. Everything is now ready for the wiring to be added and the clock tested before turning our attention to the dial. The clock will be checked for pendulum amplitude as well as making sure that the pawls only collect one tooth of the count wheel for each complete swing.

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The assembled pendulum coil. The scratched cover has been painted black as per original.

The movement re-united with the base, column and pendulum.

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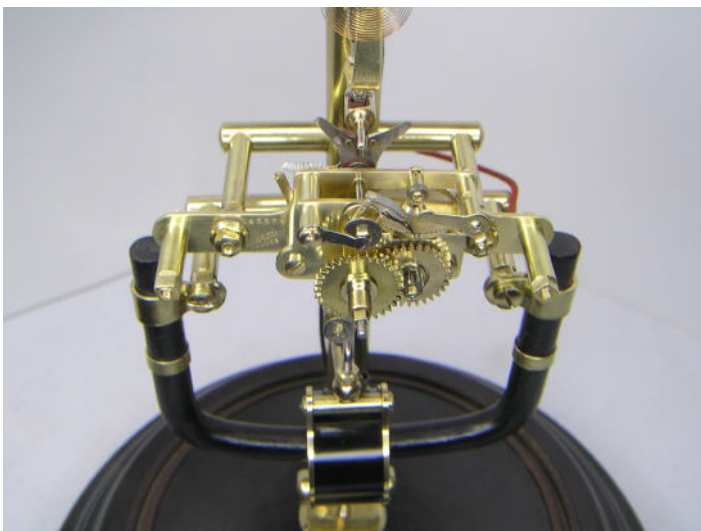
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The dial before and after. The chapter ring has been cleaned, silvered and lacquered.. Notice how the characters show up much more clearly against the silvered background.



The clock is now ready to receive the dial.

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The completed clock . The insert photo shows the clock as delivered.

Hopefully the clock looks and performs better than it did on arrival. The Bulle badge just about covers the hole and is reasonably on centre.

It is keeping time to within 20 seconds per week.

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