Oscar – a Prototype from Favre - Bulle

Photos of Oscar installed in a non original Travel Clock style case

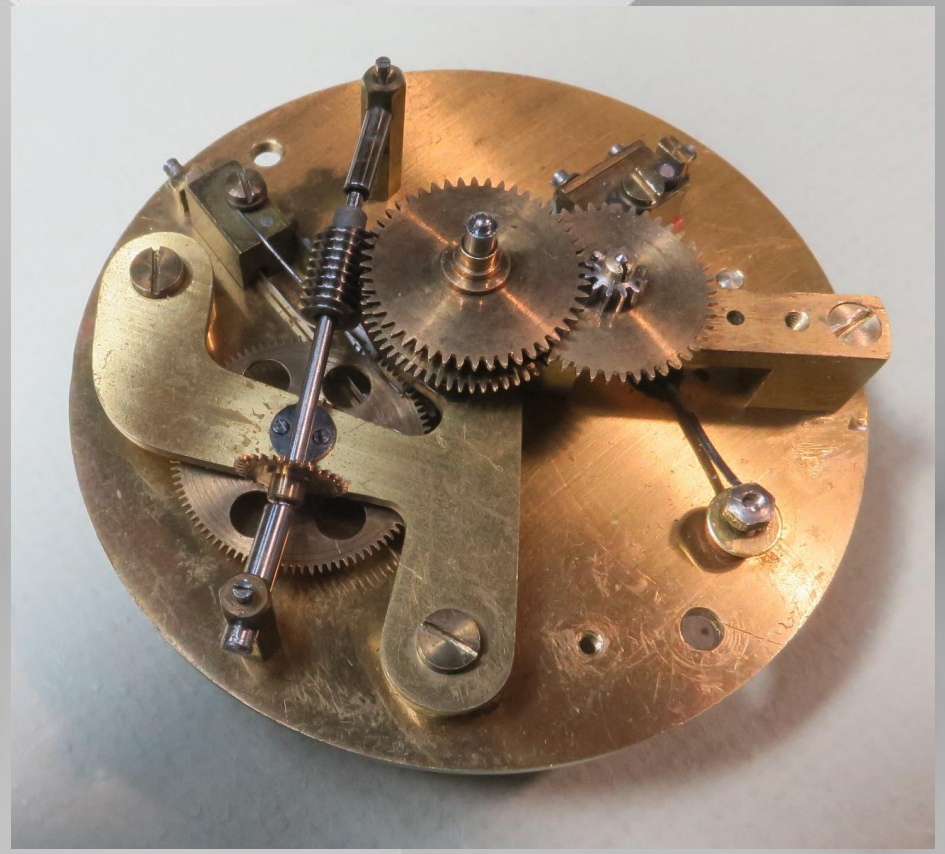
Where did I come from ?

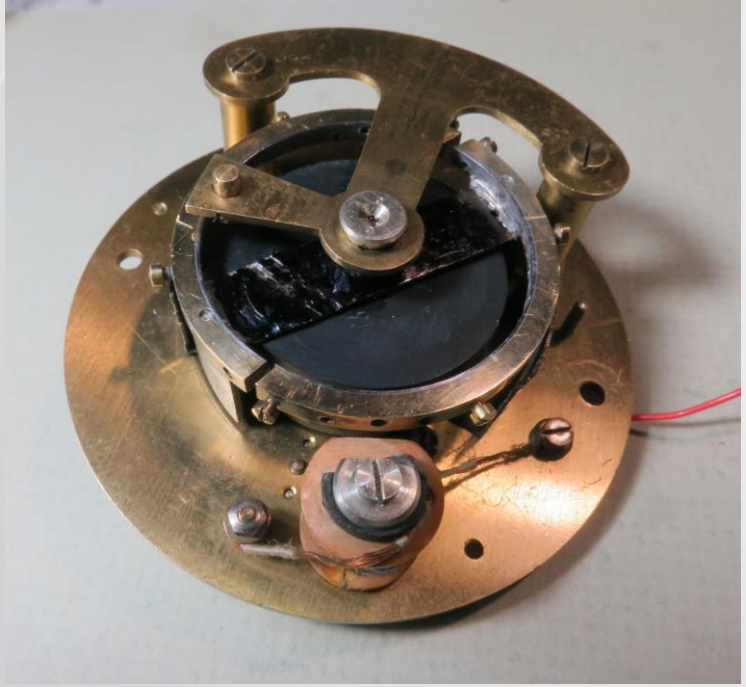
The clock, nicknamed “Oscar”, came from a friend in France who bought it from a person who said it was a prototype from the Bulle Factory. He said it had been purchased from some of the items sold when the Bulle business was liquidated around 1957 and the equipment sold to a Brazilian Company - Alto Relogios.

OSCAR THE UNKNOWN

Type of Movement

The clock movement was a most interesting one with a large balance wheel, a multifunction escapement wheel and a jewelled pallet on the balance wheel shaft. The jewelled pallet indexes the escapement wheel via its integral ratchet wheel





Escapement wheel below

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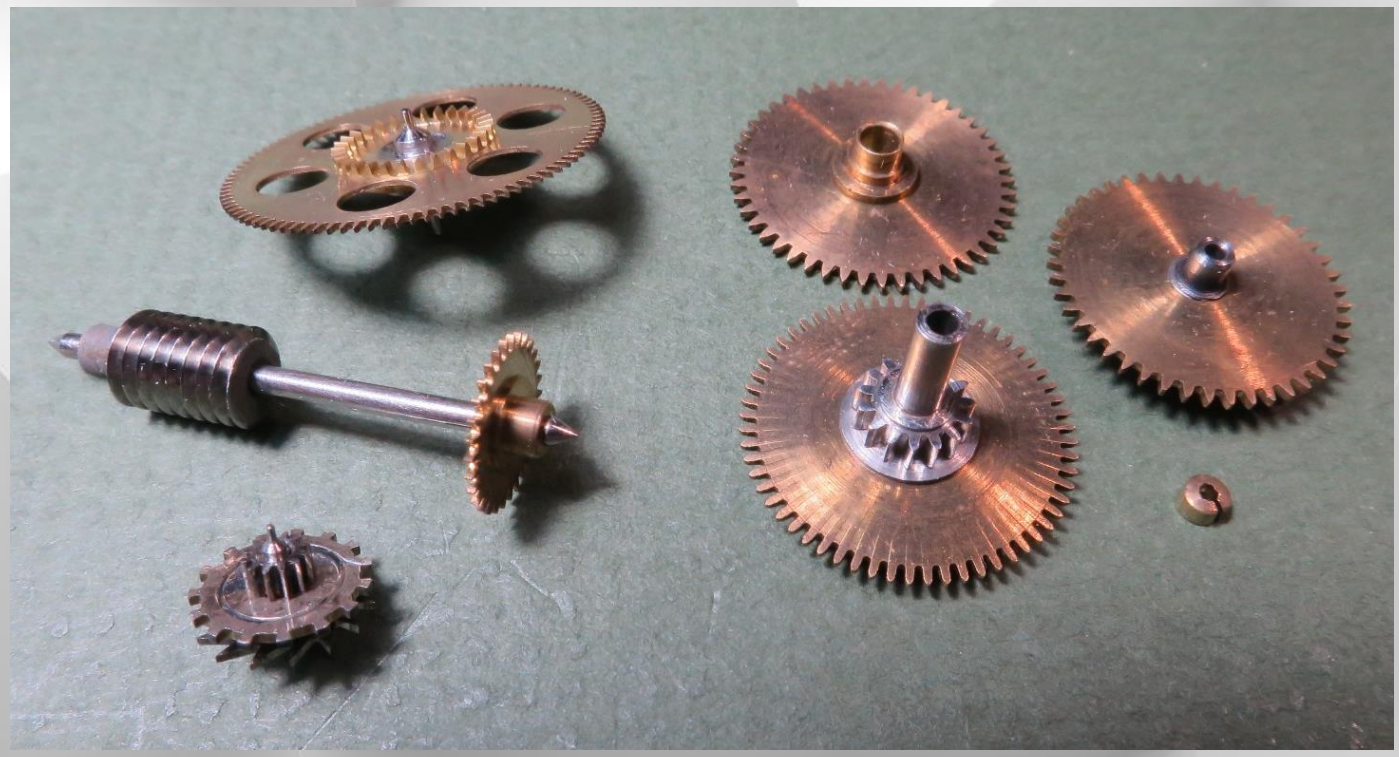
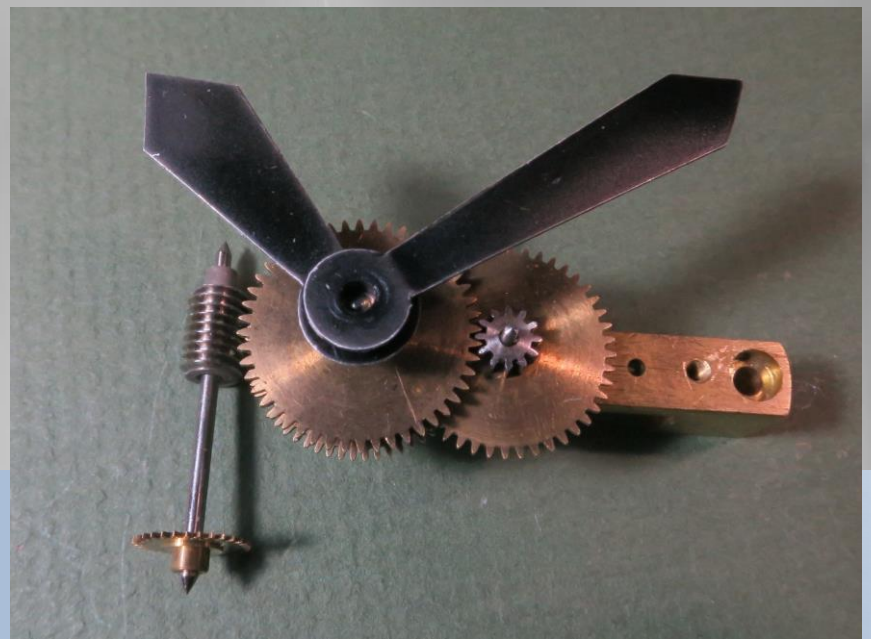
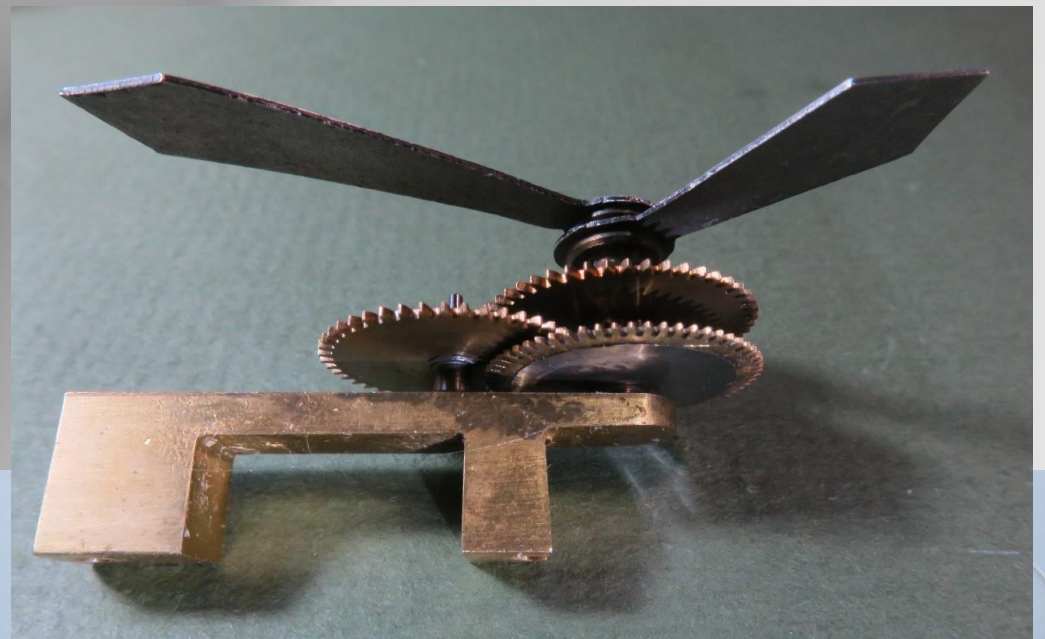


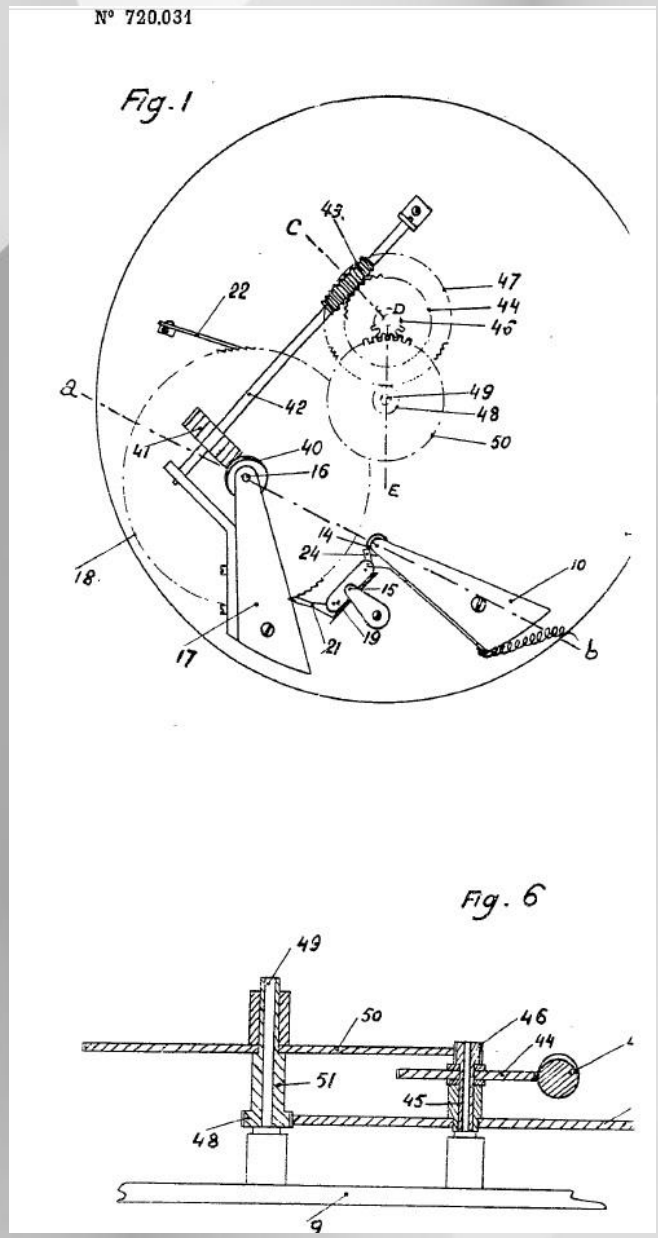
5 The escapement wheel also drives a train of gears that move the minute and hour hands of the clock.

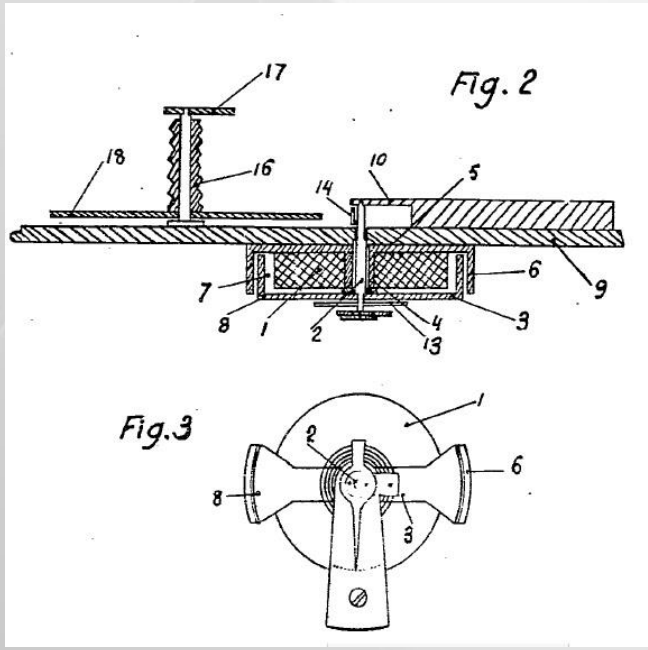




Bulle Patents

A search of Bulle Patents revealed Maurice Favre-Bulle was actively developing and patenting clocks similar design to this movement in 1931 and 1932 with seven patents granted in France, the UK, the USA, Germany and Switzerland.
These patents all had the same form of balance and coil as this movement.
As well as these seven patents he also was granted another sixteen patents in the period 1922 to 1945 all detailing movements other than the standard moving coil pendulum with a fabric suspension spring.





RÉPUBLIQUE FRANÇAISE.

MINISTÈRE DU COMMERCE ET DE L'INDUSTRIE.

DIRECTION DE LA PROPRIÉTÉ INDUSTRIELLE.

BREVET D'INVENTION.

Gr. 12. — Cl. 1. **N° 720.031**

Montre électrique.

M. Maurice-Philippe FAVRE-BULLE résidant en France (Seine).

Demandé le 15 juillet 1931, à 15h 55m, à Paris.
Délivré le 24 novembre 1931. — Publié le 15 février 1932.

La présente invention a pour objet une montre électrique, c'est-à-dire un appareil horaire portatif, à réaction directe, présentant une sûreté de marche absolue jointe à une simplicité de construction non encore atteinte à ce jour pour n'importe quel système de montre, mécanique ou électrique.

Cette montre est essentiellement caractérisée par le fait que le système électromoteur est un électro-aimant dans lequel le noyau de la bobine est constitué partiellement par l'axe même du balancier tandis que l'armature est constituée par le balancier lui-même.

Cette disposition particulière permet d'utiliser sous un très faible encombrement des organes de dimensions relativement importantes, permettant d'obtenir toute la force nécessaire pour assurer une sûreté de fonctionnement parfaite à l'ensemble de le mouvement circulaire alternatif du balancier en un mouvement circulaire continu qui est transmis par la roue d'échappement au mécanisme d'entraînement des aiguilles.

Cet organe intermédiaire est à deux fins, étant également utilisé comme organe de manœuvre du contact électrique destiné à fermer périodiquement le circuit d'alimentation de l'appareil. Ce contact est du type à frottement, permettant l'entretien automatique des surfaces en présence; il est réalisé de manière à n'opposer que le minimum de résistance passive tout en assurant entre les surfaces en présence la pression qui s'impose pour obtenir des émissions de courant d'une valeur constante.

La roue d'échappement est, contrairement à ce qui s'est fait habituellement jusqu'ici, de diamètre relativement grand et comprend un grand nombre de dents, ce qui permet

Was this clock made by Bulle

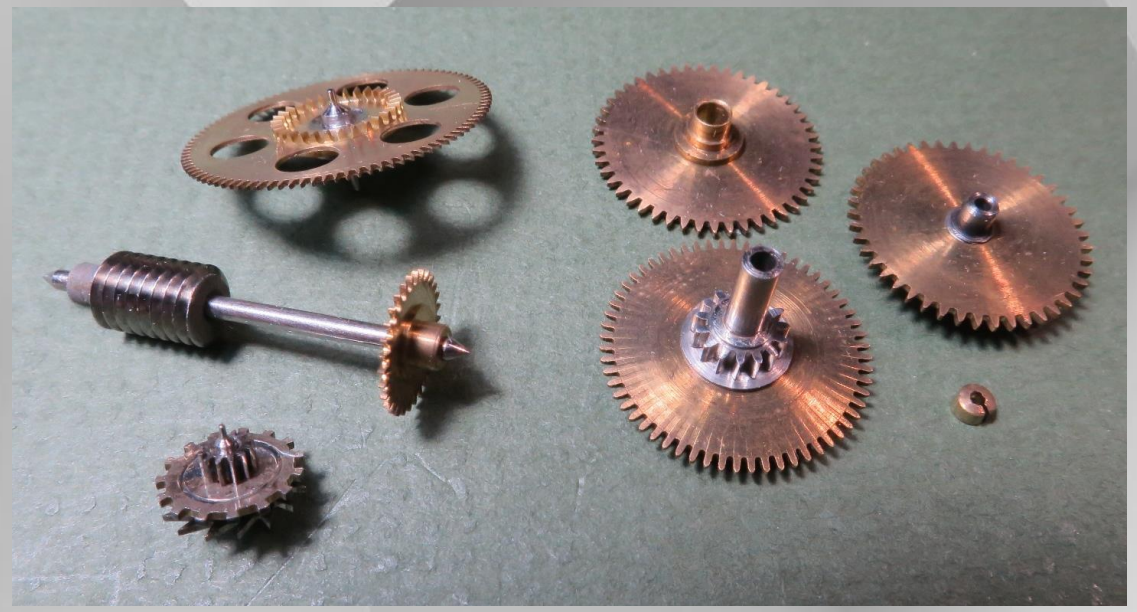
There are a number of other indications that the movement was made by Bulle.

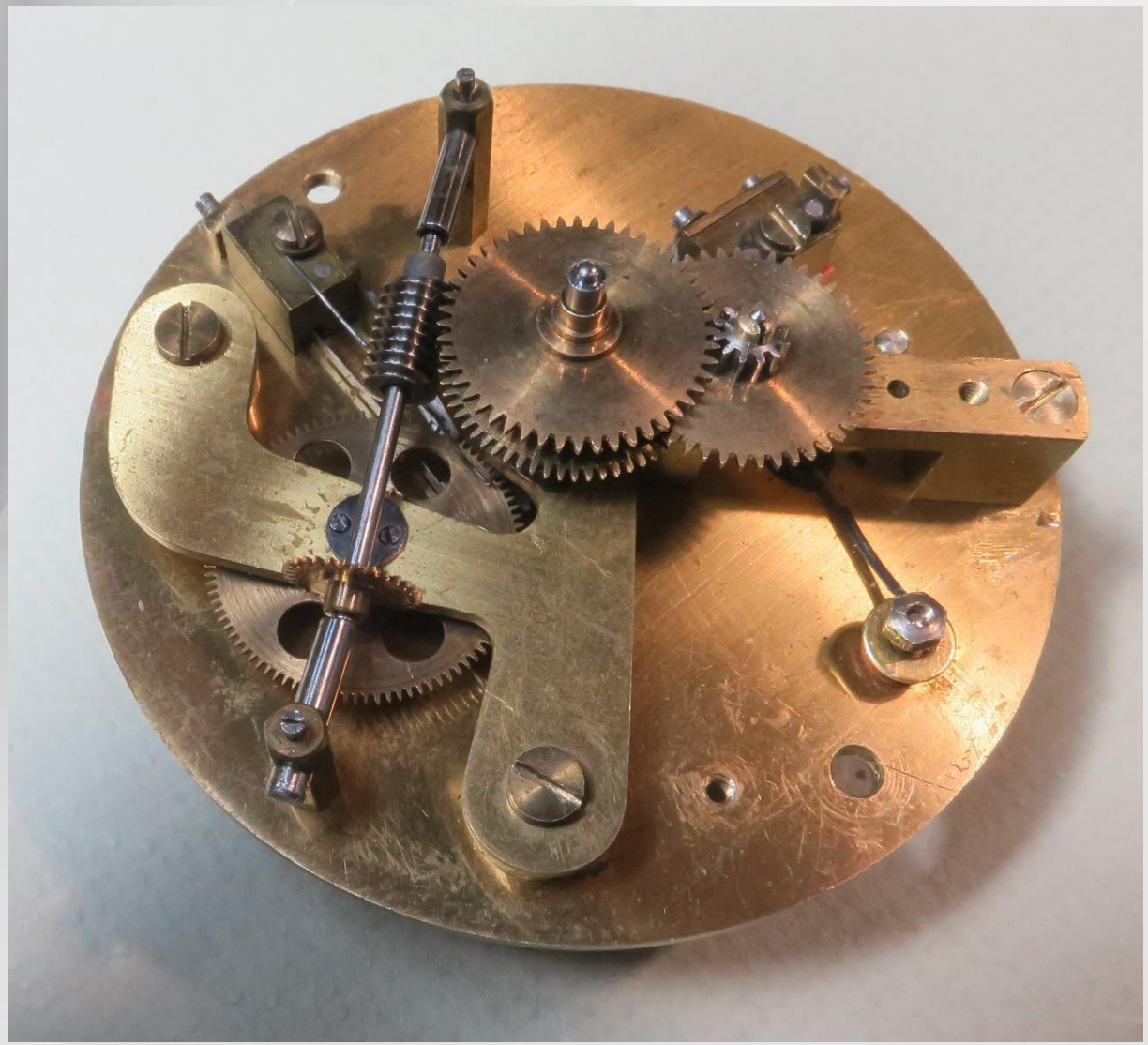
1 The first indication is that the vendor stated to the purchaser, from France, that it was a prototype from the liquidation of the Bulle Factory. The clock could have been purchased at a clock fair at Manheim about 10 years ago.

2 Another person recalls seeing a lot of Bulle dials and mainly Travel Clock movements at a Manheim Fair about 10 years ago and also being told they were from the Bulle Factory - confirming the purchaser's story.

Was this clock made by Bulle

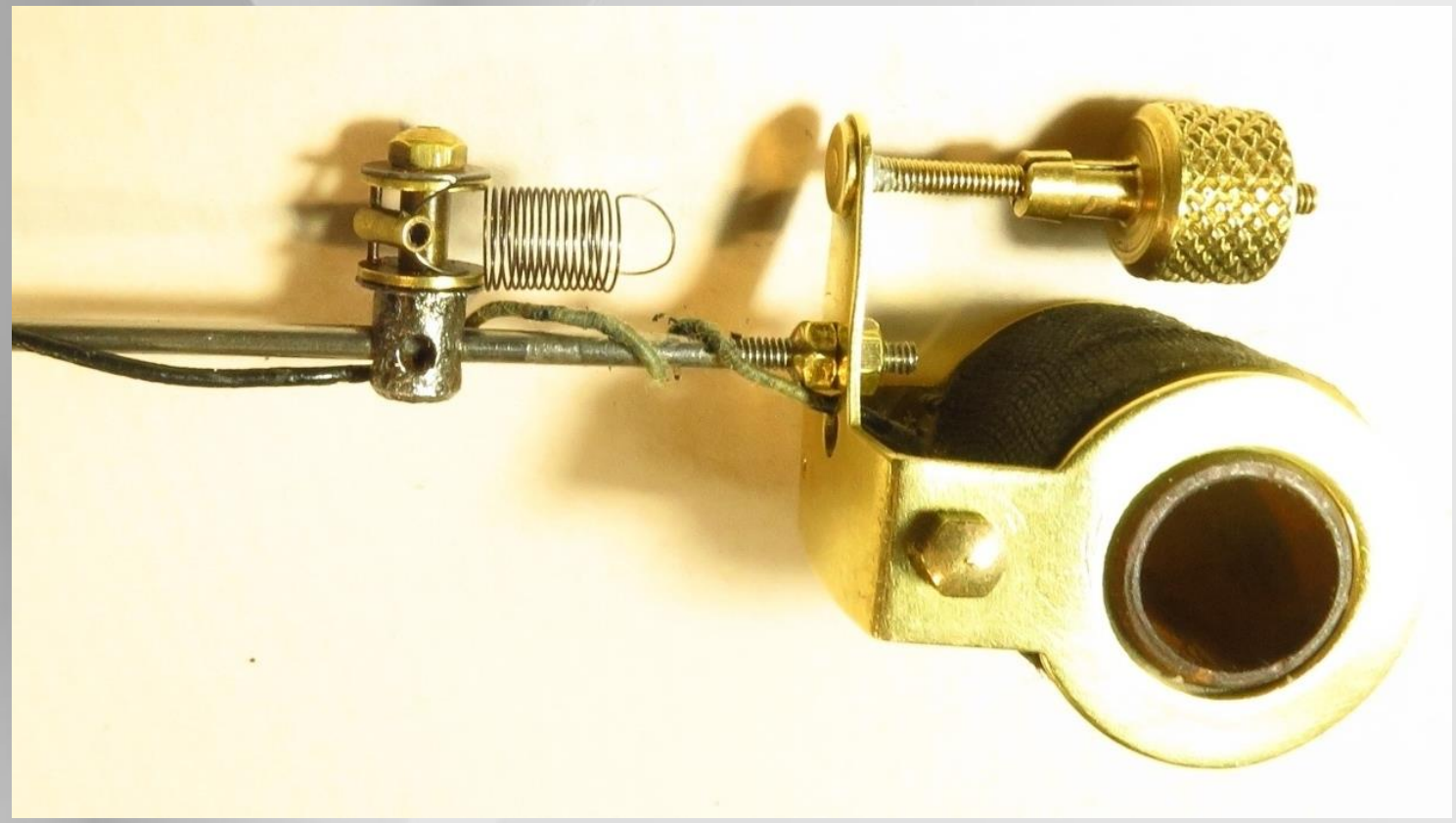
3 The construction of the clock (apart from the modifications/repairs to the Balance wheel) is very high quality and the wheel work very professionally manufactured. This would indicate that it had been produced by a large well resourced organisation like Bulle.





Was this clock made by Bulle

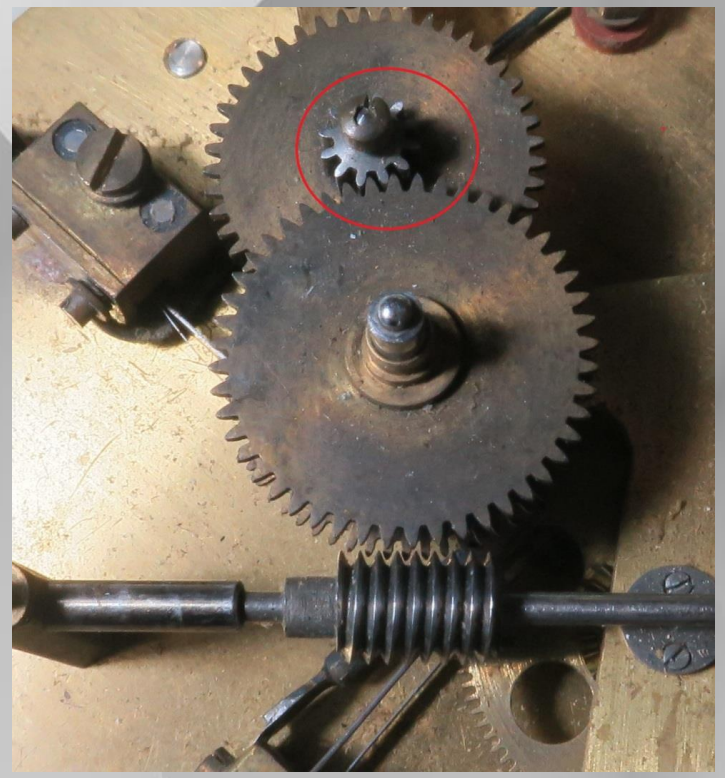
4 The wiring uses cotton (or similar) covered copper wire with a black lacquer on the outside of the cotton insulation – see photo on left.
This looks to be the same wire used on a Bulle travel clock (photo on right) from around 1938.

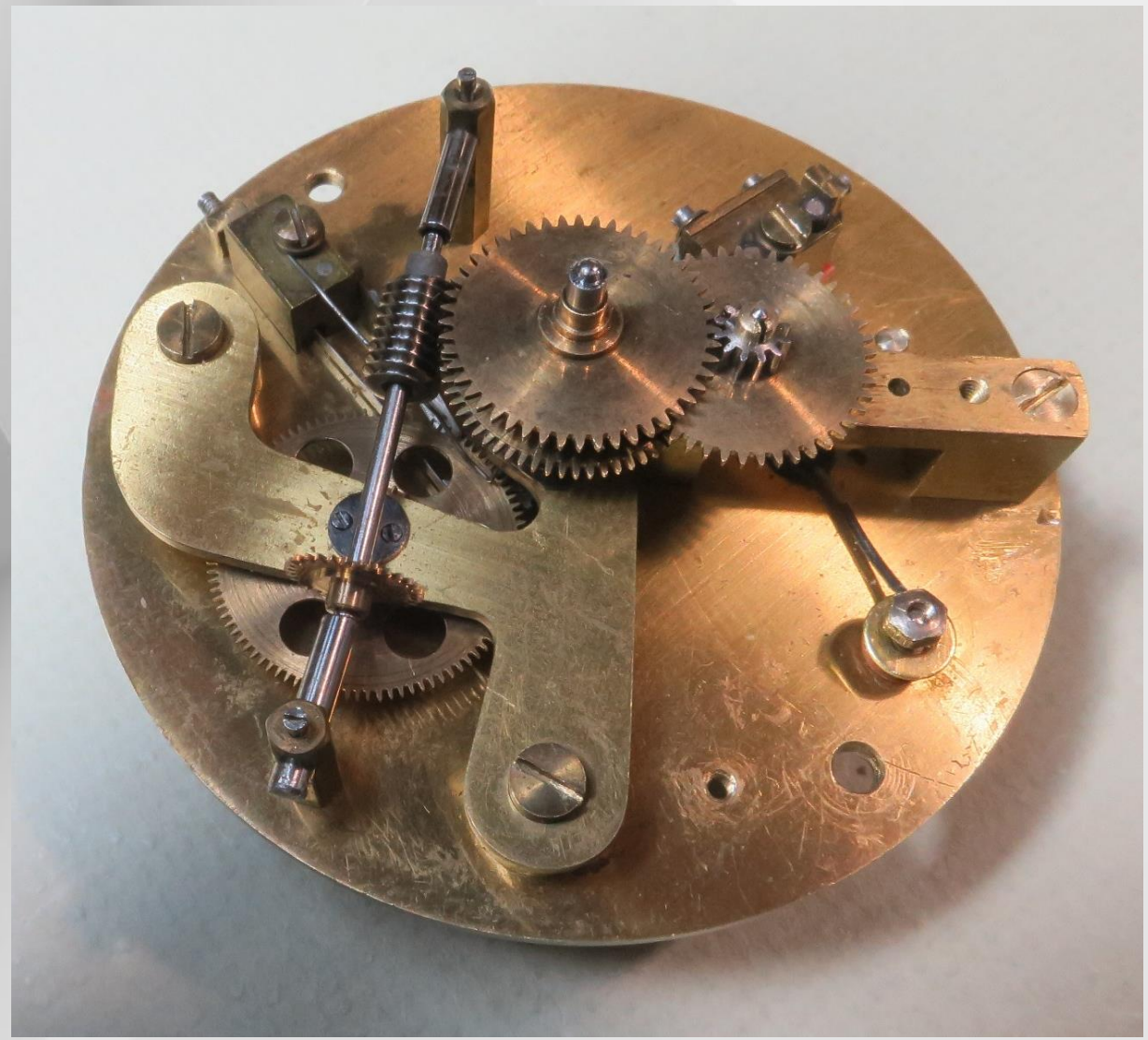


Was this clock made by Bulle

5 The retaining collar on the motion work intermediate gear looks to be a Bulle manufacture – commonly used in their clocks

6 The movement uses a worm gear transmission which is characteristic of almost all Bulle clocks (except the Travel Clock)



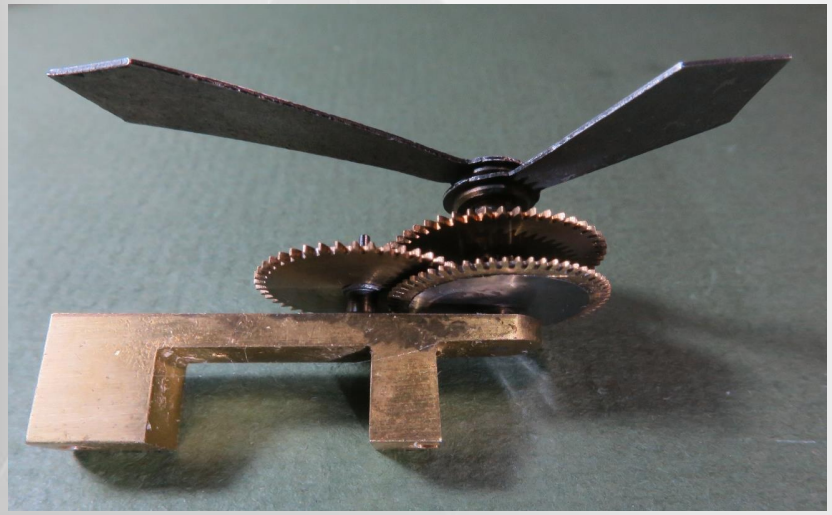


Was this clock made by Bulle

7 The balance wheel bearing and spiral spring support bridge is a very similar design to that of the Bulle travel Clock bridge.

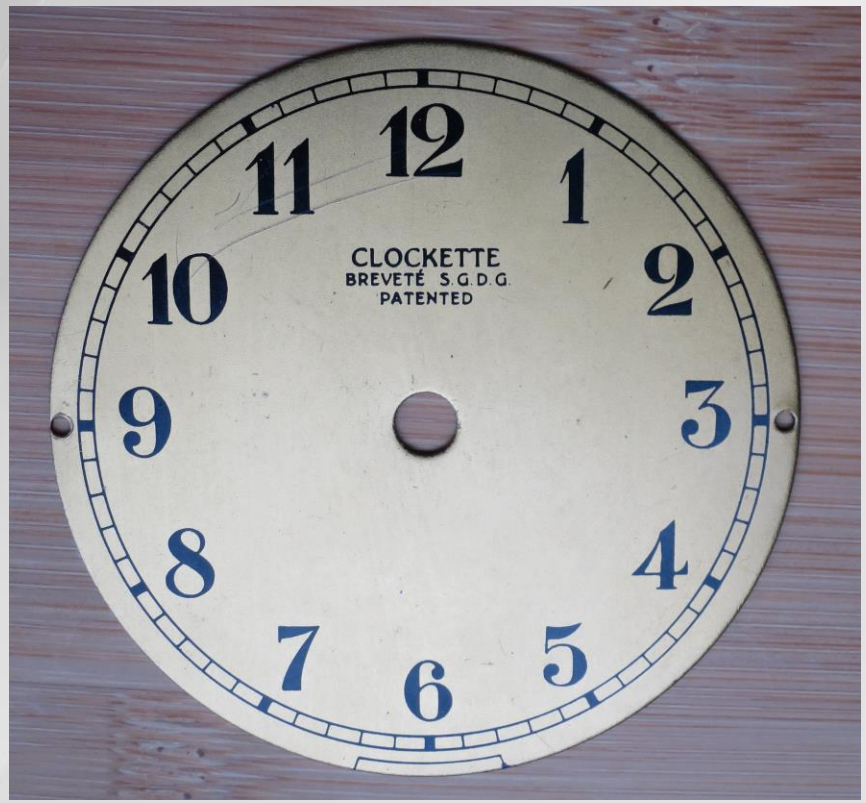
Was this clock made by Bulle

8 The hands are of a Bulle travel clock design and construction. The hands are such a precision friction fit to the hour and minute shafts that it appears that they were made by the maker of the movement. If not they were certainly very professionally made to achieve the perfect inteference fit that was required by the design.



Was this clock made by Bulle

9 The dial looked to be manufactured by Bulle and at 65mm in diameter did not appear to be from any Bulle clock detailed on the internet. The dial had virtually no sign of use – indicating it had not been “taken” from an existing clock.
10 The dial artwork is virtually identical to a Bulle Travel clock from C1931 but with a round chapter ring. The dial is of such a quality that it is highly unlikely to have been made by anyone else.

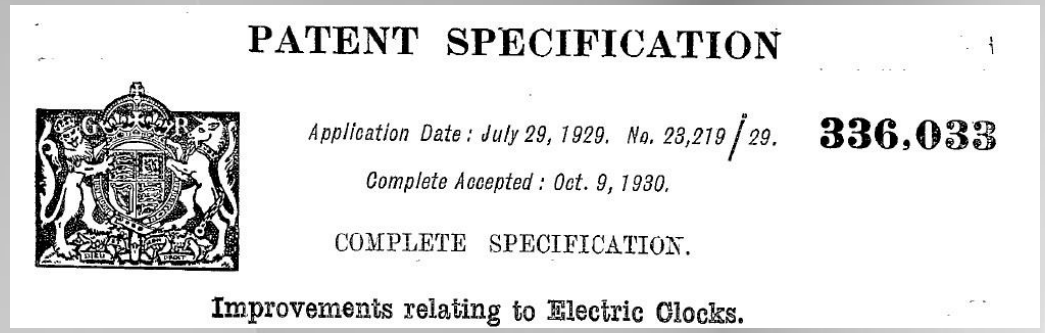


The Bulle Travel Clock

The Bulle Travel clock was a commercial product made by Bulle in the early 1930's Its limited production and relative scarcity indicate that it was not a great commercial success. It had high quality cases that would have been expensive to manufacture. Possibly the depression starting in 1929 contributed to its limited production.

However it is particularly relevant as it confirms that Favre Bulle was actively pursuing the development, production and Marketing of electric clocks that were portable.

The French Patents covering the travel clock were applied for in 1928 Patent no FR673360A. The patent was also applied for in the UK (Patent no GB336033A) and Switzerland (Patent no CH143077A) in 1929.



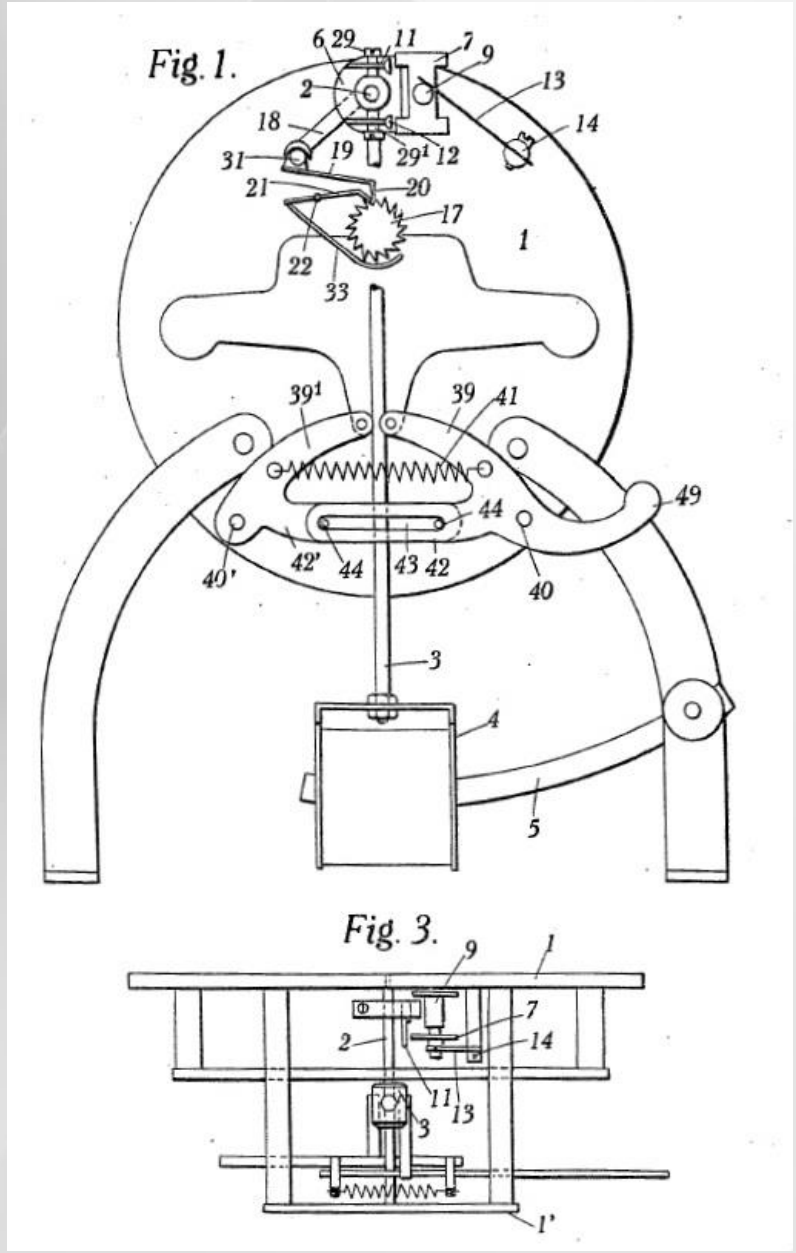
PATENT SPECIFICATION

Application Date : July 29, 1929. No. 23,219 / 29. **336,033**

Complete Accepted : Oct. 9, 1930.

COMPLETE SPECIFICATION.

Improvements relating to Electric Clocks.



OSCAR THE UNKNOWN

The Bulle Travel Clock

The Travel clock had a moving coil and H piece electrical contact system similar to other Bulle clocks but the coil pendulum used pivots rather than a fabric suspension spring. This made the clock more portable but it did have a locking mechanism to lock the pendulum during transportation.

Was this a Prototype Movement - 1

1 At least six or seven electric clock experts have been consulted and none had seen a movement like this before. This is consistent with it being a prototype clock that never went into production.

2 A factor that may have prevented further work on the Prototype was that Bulles Pendulum Travel clock was of a very limited production with all on the Internet having serial numbers between 272,000 and 278,000 and this dates the travel clocks to the early 1930's. It looks like it was a commercial failure as a travel clock. And so future developments after Oscar may have focussed more on developing a clock suitable for Automobiles rather than a Travel clock.

3 The Power consumption of Oscar is quite high and in the order of 10 times higher than what would be needed for the clock to have a future as a battery powered clock. With some more work improvements could perhaps be made but improvements are unlikely to result in an improvement of 10 times. In his patent he says a possible application of these type of clock were for, but not limited to, Automobiles. If it were for Automobiles then the higher power consumption would be less of a problem.

Was this a Prototype Movement - 2

4 The Hand adjustment slip clutch was seized up and on inspection the reason was not dirt or corrosion - It had been made that way and further reinforces (along with the minimal wear) that it was probably a prototype that had little use.

5 The clock was difficult to adjust with two of the main adjustment screws adjusting contacts that are obscured by the gear train that move the hands. Mistakes to the adjustments can and did result in damage to one delicate contact spring.

6 The unusual design and complex delicate parts would mean if it ever became a production model repairs by clock repairers would be very difficult.

7 The worm gear component is mounted and positioned on bearings on twin posts with two degrees of freedom. This would be an unlikely design arrangement on a production model.

Was this a Bulle Prototype - Reservations

1 There is some questions over weather the dial was original to the clock. While the holes on the bezel and movement match up there were missing standoffs so the dial (being a significant factor pointing to it being a Bulle) could be a marriage with the movement. One report indicates that there were also a number of dials and quite a few more common Bulle travel clock movements as well as this movement at the Manheim sale where it was purchased approximately 10 years ago.

2 The case the clock is mounted in is not original and so should not be considered in evaluating if the clock movement is of Bulle origin. This case was a spare left from a project to manufacture a case for a travel clock that had an unrepairable original case.

3 The only thing that could be said about the case is that the clock was a perfect fit for the case and required no modifications apart from making two brass upright supports.

4 There are no markings on the clock movement showing the Bulle name.

Was it a Bulle Prototype Clock - Conclusions

1 It had the look and feel of a very professionally built mechanism by an organisation with a lot of resources. There is considerable evidence that it was a prototype made by Bulle

2 There does not appear to be any examples of this clock on the Internet or in many experts experience that could be found to date. The design and construction would have made it very expensive and difficult to manufacture so it is hard to see it would be a viable mass produced product.

3 So on balance my conclusion is that it was a prototype built by Bulle in the early1930's to explore the possibility of a Travel clock with a balance wheel rather than a pendulum. Because of the problems/issues described it never made it into commercial production.

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OSCAR THE UNKNOWN

Acknowledgements

I would like to acknowledge the following three people.

George Tessot for supplying the clock, providing technical expertise, Patent information, feedback on this presentation and encouragement to pursue this project.

Augustin Gomand for feedback on this presentation and for providing the key Patent references that allowed the clock to be identified as a product from Maurice Favre-Bulle.

Grant Griffiths for technical expertise and supporting information.

Brian Scott 30th September 2023
Brian@hectic.name

Type of Movement

1 The escapement wheel operates two electric contacts (an in and an out) and a ratchet arrangement to lock the escapement wheel between indexing steps.
2 One contact is activated by a square toothed silver wheel on the escapement wheel and the other one uses a slip ring arrangement mounted on the escapement wheel between the square toothed wheel and the ratchet wheel.
3 The large balance wheel has an iron cross piece with two flags that are driven by being attracted to two stationary pole pieces magnetised by a coil.
4 The coil is switched once per cycle of the balance wheel by the electrical contact system described above.
5 The escapement wheel also drives a train of gears that move the minute and hour hands of the clock.
6 The positioning of the contact that engages with the silver square toothed wheel is adjustable with a screw mounted inside a fixed block. This is used to fine tune the coil switching so it is done at the time the balance wheel flags are near the stationary pole pieces
7 The positioning of the ratchet arrangement that locks the escapement wheel are also adjustable with a screw within a brass block and this locks the escapement wheel so the electrical contact is open and the coil is de-energised when the balance wheel flags are not near the stationary coil and pole pieces.

Condition of Clock Movement

The clock movement had a broken balance pivot and broken indexing jewel and fairly amateurish repairs had been done to the balance wheel and magnetic circuit components on the balance wheel.
Apart from the balance wheel repairs the rest of the movement was in good condition and was of very high quality.
Gear quality and finish were exceptional and the movement was made with very fine tolerances.
The bezel and dial were missing some attachment parts but the holes in the bezel and the movement lined up.
The hands fitted the movement perfectly and were the right size for the dial
No case came with the movement but the bezel had a convex bevelled glass originally and so the original movement and dial mostly likely were mounted in some form of case.
There were few signs of wear to the movement so apart from the balance wheel repairs the rest of the movement appears to have had little use and few adjustments or repairs during its life.
One interesting feature was that the hand adjusting clutch mechanism was seized up and this was not due to dirt or corrosion. It appears as if the hands had never been adjusted as the clutch was so tight that any attempt to adjust the time displayed on the dial would have been impossible.
SEE VIDEOS