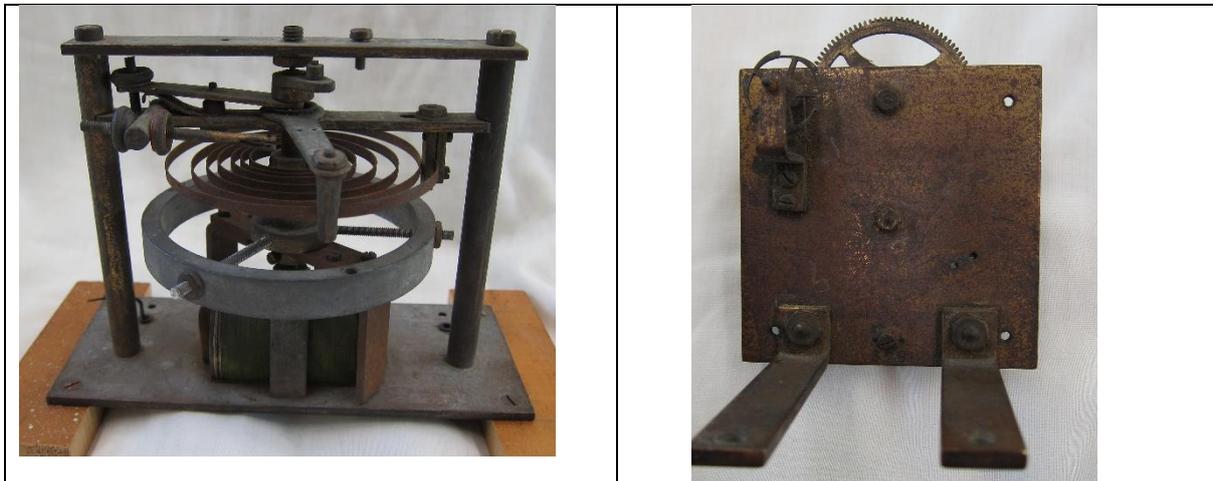


Murday's horizontal balance wheel clocks.

In 1996, the Electrical Horology Group of the Antiquarian Horological Society held an exhibition of Hipp toggle clocks. The exhibition catalogue was published as EHG Paper No. 56. The exhibition featured several clocks made by the Reason Manufacturing Company to designs by Thomas Murday, including two different versions of his horizontal balance wheel clock. One of the authors of the catalogue, Arthur Mitchell, dubbed them Mark 1 and Mark 2. Exhibit No. 4, the 'Mk2 version' is unusual in that the balance wheel is impulsed magnetically by a solenoid at the centre of the base rather than by an arm activated by a solenoid at the back. Although it is not signed, there are great similarities to the 'usual' horizontal balance wheel clock, and the catalogue states that 'several of these clocks are known to exist'. Although the patent for the Murday/Reason dome clock (GB 191001326) does not mention the possibility of direct magnetic impulse of a balance wheel, it is foreseen in Murday's earlier patent (GB 189706212).

The remains of one of these clocks came to us, with a great deal of other Murday material, from the estate of Laurence Taprell, who had been an apprentice in the Prouds workshop that Murday had come to Australia to lead in 1911. We described some of that history in an article in Horological Journal in 2009. More recently, we have restored a Murday tower clock for the Kingaroy Heritage Museum and recently we acquired a Murday Thread Recording Electric Microbarometer made by Prouds. It has a half second pendulum clock inside to drive it. But back to the balance wheel clock. We have a balance wheel and coil unit, and several wheel-work modules. Some of the latter have dial standoffs suitable for a dome clock, but one has brackets like the one on Exhibit No. 4.



We believe that Murday used balance wheel clocks in the major installation Prouds made on the ferry wharves at Circular Quay in Sydney. These were described as being independent clocks corrected by master clocks which were in turn synchronised to a standard clock in the Sydney Observatory as can be seen in the following description sent to the Synchronome company in Brisbane in 1916 . The tower clock we have restored is the same as the one in the centre of the

photo. Judging from the corrosion on the relic we have, it was used near salt water, so may have come from one of the wharf clocks.

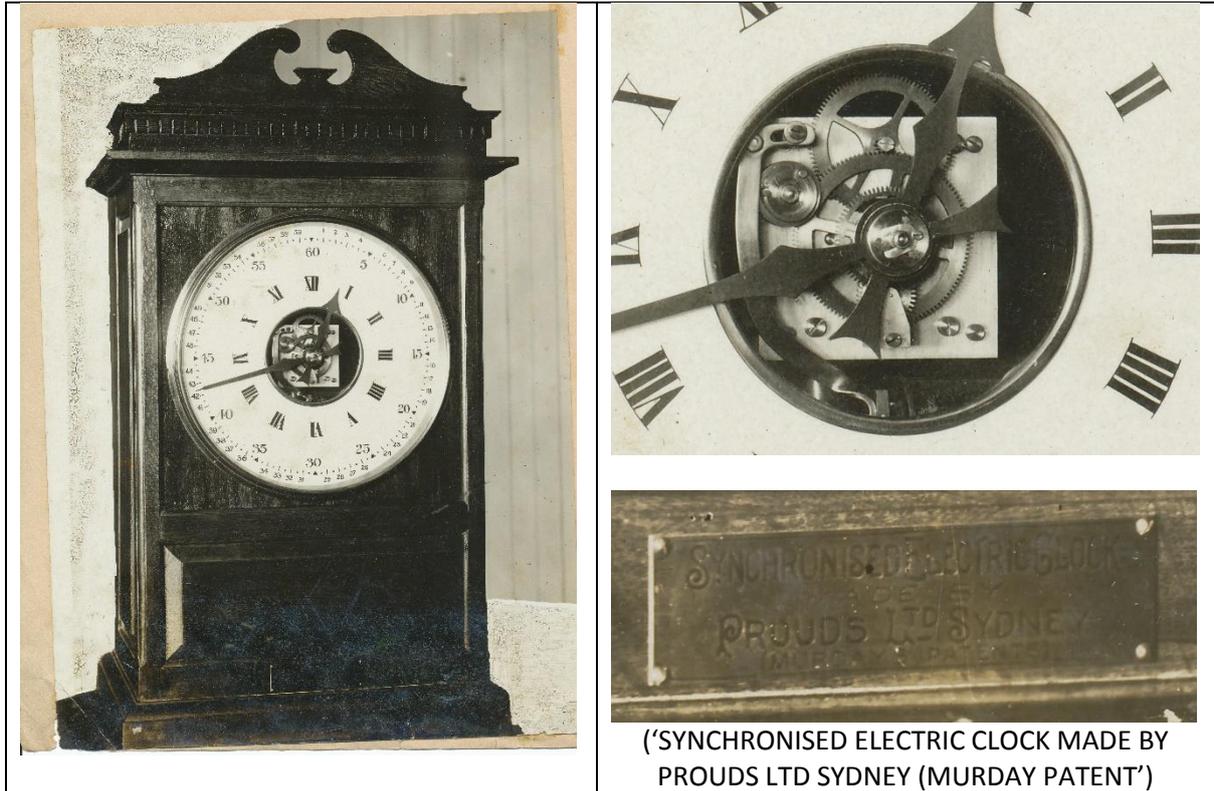


Some of the special electric self-contained clocks made to the order of the Sydney Harbor Trust, and installed on the various Ferry Jetties, Circular Quay.

The complete installation consists of six single dial, 2 ft. diameter drum Clocks. 2 double dial, 3 ft. diameter drum Clocks, three smaller clocks as "starters". 2 turret movements, each driving three, 3 ft. and three 3 ft. 6 in. diameter dials, and one turret movement driving a four foot dial. Each clock is complete in itself and contains its own battery.

The hands all progress steadily, not in half minute jumps, as in the case of the ordinary type of electric clock.

A Master Regulator (also electric) fixed in the vestibule of the Harbor Trust Buildings transmits a synchronising current hourly throughout the system, correcting any slight error that may exist in any individual clock. This Regulator is itself electrically connected with the Mean Time Clock at the Observatory, so that the pendulums are swinging synchronously.



This clock has a hand-moving 60 minute synchroniser visible at high resolution, and is stated to have a balance wheel movement.

Subsequently, we were able to contact the owner of the clock in the AHS exhibition, and with James Nye's help, photograph it. Since we already had a number of the wheel-work modules, we were able to 'restore' our relic to operating order by fabricating replacements for the missing electrical contacts and connecting levers. The dimensions of the magnet and frame and lead balance wheel are the same. We set it up as a dome clock for display even though the use of lead for the wheel suggests that it was not meant to be seen. The owner of the AHS exhibition clock had been forced to replace a missing Hipp toggle trip plate so we do not know what its original shape was. The long tail seems to be necessary to avoid the clock overrunning the trip on one swing and not reaching the trip plate on the next because the rate of decrease in amplitude is much greater than in a pendulum clock.



Since doing this work, we became aware that a similar magnetically pulsed clock was sold by Christies in 1998 (Lot 399/Sale 6070). It had a signature plate marked *'Electric Clock*

Made by the Reason MFG Co. Ltd. Brighton Murday's Patent',



It differs from the two discussed above in having a polished steel balance wheel with weights rather than the simple lead wheel. The support for the wheel-work and upper bearing for the balance wheel arbor are different too, although such differences are also seen in the 'normal' electromechanical version.

More recently we have become aware of two other examples on the ClockDoc website. One (No.338) has a lead balance wheel and hands and dial similar to those used on other Murday clocks.



There is no maker's signature.

The other, (No. 368), has a polished steel balance wheel with brass weights



Again there is no signature.

So it seems that there was a second, less common, version of the Murday horizontal balance wheel clock with magnetic impulsing and a smaller balance wheel, in production. We know of four examples, all with identical solenoids, but all are different in detail and casing. Only one has a maker's signature. Whether they were made before, after, or contemporaneously with the more common electromechanical ones, it seems likely that the ferry terminal clocks installed by Prouds in Sydney in 1913 used this type of magnetic impulse, even while they were advertising the dome clock with electromagnetic impulse.

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