

E.N.E.M. clocks built by

Eerste Nederlandse Electro-Magnetische Uurwerkfabriek

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E.N.E.M was the **Eerste Nederlandse Electro-Magnetische Uurwerkfabriek** [*First Dutch Electro-magnetical Clock Factory*] which produced clocks from 1917- 1926. After they went bankrupt in 1926 the activities were continued by Nederlandse Radiowerken [NRW, *Netherlands Radioworks*]. But the trace stops after 1927. (Heij, retrieved 2014; Wikipedia, retrieved 2014).

Patent 4604

E.N.E.M was the Eerste Nederlandse Electro-Magnetische Uurwerkfabriek, which started production of electro-magnetical clocks based on the Dutch Patent 4604 owned by Jan Laméris of Winschoten. The patent 4604, awarded 1919-11-20 was specifically for the electro-magnetical winding or -drive train for clocks [*Electromagnetische wind-, resp. drijfwerk voor klokken*]. E.N.E.M. lost the patent 4604 at 1922-04-15 due to not paying the annual fee (Dutch Patent Office, retrieved 2014).

No brochures of the E.N.E.M. product portfolio have been found until now, but we got some information on the clocks produced, from the article in the Holland Express (1922). In addition Van der Bilt (1922) writes in his textbook *Zwakstroomtechniek* [*Low Tension Electricity*]:*"E.N.E.M. also produces autonomous mantle clocks, which can command a small number of slaves. On request these mantle clocks and slaves can be fitted with strike and alarm"*.

Although the mantle clocks can be seen on a picture of the showroom at a the exhibition at the Jaarbeurs in 1927, retrieved 2014) no further technical description has been found. If we look carefully at the picture of the table clock in *Folder Patent 4604*, we see a complex commutator system for the winding coil. It is believed that this commutator mechanism can also be used for the command of a small number of slaves. According to van der Bilt, the required current is small 4 to 20 ma.

As can be seen in the *Folder Patent 4604*, based on existing artefacts, three basic movements have been identified and confirmed,: the master clock, the single sided slave and a the table clock. Although E.N.E.M. was bankrupt in 1926, Hoogeveen (1937) described the E.N.E.M. master clock and slave, but not the table clock in 1937.

In the album *Known Masters*, four clocks have been documented. An extensive report on the restoration of an E.N.E.M. Master (serial nr 1032) was described by Ernie Jenson (2012). A number of slaves can be seen in the album *Slaves*.

One complete example of the table clock (serial nr 212) is owned by SMAT. Two table clocks movements with serial numbers 223 and 226 are known.

The morphological related works to ENEM

In 2010, the independent findings of two, E.N.E.M. morphological related movements with a deviant winding system using a cylindrical actuator, raised the hypothesis that there was a second E.N.E.M. construction principle. The principle resemblance the one used by Brillié or Garnier for their slaves and as recent research revealed is believed to be Dutch patent 6264.

In the album *Patent 6264*, the known examples can be seen. Already known was a double sided slave movement (serial nr 312) (animated by Bosschieter) but this was seen as an abnormality as also the actuating system was deviant from the slaves based on the 4604 patent.

In the album *Patent 6264* we see a master clock with escapement (serial nr 3059); a table clock movement (serial nr 268) and the already known double side slave. Based on these known artefacts and construction principles, Dehing (2010) constructed a morphological table for the E.N.E.M. clocks. He hypothesises that based on the two working principles, there might be 4 more works to exist for

master and table clocks. For the slaves he states that it might be obvious that for both winding/actuating systems single and double sided works have been produced.

Patent 6264

So, recent research at the Dutch Patent Register [*Octrooi register*] revealed that Laméris *Utrecht* in 1921-07-13 got awarded the patent 6264 for a electro-magnetical drive work for clocks . As we have no further description of the patent our hypotheses is that the artefacts are based on the patent 6264. E.N.E.M. lost this patent again in 1923-12-15 as they did not pay the annual fee.

Remarkably, none of the artefacts was stamped with a patent number as the 4604 artefacts were, but all have stamped serial numbers.

As far as the serial numbering concerns, the numbers for the three works on the patent 6264, all are higher than the numbers of works based on the 4604 patent which supports the hypothesis that the artefacts are more recent.

Literature in Documentation section

Van de Bilt, C.L. , 1922, *Zwakstroomtechniek*.

Dehing, A., 2010, *E.N.E.M. Morfologische Tabel*, revised version 2014.

Holland express, 1922, *Beschrijving van de N.V. Eerste Nederl. Electr-Magnetical Uurwerkfabriek "ENEM" te Utrecht*.

Hoogeveen, W.P. 1956, *Elektrische uurwerken*, 6th edition (identical as the 1937 1th edition).

Jenson, E., 2012, Barn Find.

Websites:

Dutch Patent Office, <http://register.octrooi centrum.nl/register> , retrieved 2-3-2014.

<http://gahetna.nl/collectie/afbeeldingen/fotocollectie/zoeken/q/zoekterm/enem> , retrieved 2-3-2014.

<http://gahetna.nl/collectie/archief/inventaris/index>, retrieved 2-3-2014.

Heij, W., 2012, <http://www.enem-utrecht.nl>, retrieved 2-3-2014.

Wikipedia, http://nl.wikipedia.org/wiki/Nederlandse_Radiowerken, retrieved 2-3-2014.