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Wyssbrod et al.

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(54) **DEVICE FOR DRIVING AN ANALOGUE INDICATOR, PARTICULARLY A DATE RING**

(56) **References Cited**

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U.S. PATENT DOCUMENTS

3,704,583 A 12/1972 Dome
3,738,097 A * 6/1973 Vuilleumier G04B 19/25366
368/37
4,050,233 A * 9/1977 Ingenieur 368/35

(Continued)

FOREIGN PATENT DOCUMENTS

FR 2 124 471 9/1972
GB 2 205 181 11/1988
JP 60-173491 9/1985

OTHER PUBLICATIONS

European Search Report issued Nov. 6, 2014 in European Application 14158625, filed on Mar. 10, 2014 (with English Translation).

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(57) **ABSTRACT**

The timepiece movement is fitted with an analogue indicator (6), particularly a date ring including a tothing (18) mechanically coupled to a drive device, which includes a motor and a drive wheel and pinion (8) and a support for the drive wheel and pinion. This support is pivotally mounted on a main plate about a first axis and it defines a second axis, remote from the first axis, about which the drive wheel and pinion is rotatably mounted. The drive device further includes a strip spring (40) exerting a force on the support such that the meshing means of the drive wheel and pinion press against the tothing of the analogue indicator. The meshing means and the tothing have respective profiles selected such that, at least in a plurality of distinct display positions of the analogue indicator, the drive wheel and pinion and the analogue indicator mesh with each other with substantially no play under the action of the strip spring.

13 Claims, 2 Drawing Sheets

