

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### INSTRUMENTS

## G04 HOROLOGY

## G04G ELECTRONIC TIME-PIECES

### NOTES

1. This subclass covers:
  - electronic time-pieces with no moving parts;
  - electronic circuitry for producing timing pulses irrespective of the nature of the time indicating means utilised.
2. This subclass does not cover electronic time-pieces with moving parts, which are covered by subclass [G04C](#).

### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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| <p><b>3/00</b>     <b>Producing timing pulses</b> (driving circuits for stepping motors <a href="#">G04C 3/14</a>; producing preselected time intervals for use as timing standards <a href="#">G04F 5/00</a>; pulse technique in general <a href="#">H03K</a>; control, synchronisation, or stabilisation of generators in general <a href="#">H03L</a>)</p> <p>3/02     . Circuits for deriving low frequency timing pulses from pulses of higher frequency (pulse frequency dividers in general <a href="#">H03K 23/00 - H03K 29/00</a>)</p> <p>3/022     . . {the desired number of pulses per unit of time being obtained by adding to or subtracting from a pulse train one or more pulses (in general <a href="#">G06F 7/68</a>)}</p> <p>3/025     . . {by storing time-date which are periodically investigated and modified accordingly, e.g. by using cyclic shift-registers}</p> <p>3/027     . . {by combining pulse-trains of different frequencies, e.g. obtained from two independent oscillators or from a common oscillator by means of different frequency dividing ratios (synchronisation of electric time pieces <a href="#">G04G 7/00</a>, <a href="#">G04C 11/00</a>)}</p> <p>3/04     . Temperature-compensating arrangements</p> <p><b>5/00</b>     <b>Setting, i.e. correcting or changing, the time-indication</b> (radio-controlled time-pieces <a href="#">G04R</a>)</p> <p>5/002     . {brought into action by radio}</p> <p>5/005     . {Debouncing circuits}</p> <p>5/007     . {by using a separate register into which the entire correct setting is introduced, which is thereafter transferred to the time counters}</p> <p>5/02     . by temporarily changing the number of pulses per unit time, e.g. quick-feed method</p> <p>5/022     . . {quick-feed method}</p> <p>5/025     . . . {the time-counters first being reset to zero}</p> <p>5/027     . . {by adding or suppressing individual pulses, e.g. for step-motor}</p> <p>5/04     . by setting each of the displayed values, e.g. date, hour, independently</p> | <p>5/041     . . {Correction of the minutes counter in function of the seconds' counter position at zero adjustment of the latter}</p> <p>5/043     . . {using commutating devices for selecting the value, e.g. hours, minutes, seconds, to be corrected}</p> <p>5/045     . . . {using a sequential electronic commutator}</p> <p>5/046     . . . . {by using a separate register into which the correct setting of one of the counters is introduced which is thereafter transferred to the selected time-counter to be reset}</p> <p>5/048     . . . {by using a separate register into which the correct setting of the selected time-counter is introduced which is thereafter transferred to the time-counter to be reset}</p> <p><b>7/00</b>     <b>Synchronisation</b> (radio-controlled time-pieces <a href="#">G04R</a>)</p> <p>7/005     . {provided with arrangements to prevent synchronisation by interfering signals (<a href="#">G04G 7/023</a> takes precedence)}</p> <p>7/02     . {by radio}</p> <p>7/023     . . {provided with arrangements to prevent synchronisation by interfering signals}</p> <p>7/026     . . {the time-piece preparing itself on set times on the reception of the synchronising signal}</p> <p><b>9/00</b>     <b>Visual time or date indication means</b></p> <p>9/0005     . {Transmission of control signals}</p> <p>9/0011     . . {using coded signals (synchronisation combined with automatic setting at regular intervals, e.g. by coded signals <a href="#">G04G 7/00</a>)}</p> <p>9/0017     . {in which the light emitting display elements may be activated at will or are controlled in accordance with the ambient light}</p> <p>9/0023     . {by light valves in general (<a href="#">G04G 9/06</a>, <a href="#">G04G 9/12</a> takes precedence; electro-, magneto- or acousto-optic devices in general <a href="#">G02F 1/00</a>)}</p> <p>9/0029     . . {Details}</p> <p>9/0035     . . . {constructional}</p> <p>9/0041     . . . . {Illumination devices}</p> |
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- 9/0047 . . . {electrical, e.g. selection or application of the operating voltage}
- 9/0052 . . . . {using means to adjust the display in accordance with the ambient light, e.g. switching or controlling a supplementary light source}
- 9/0058 . {using a cathode ray tube as display device (displaying supplementary informative, e.g. time on TV screen [H04N 5/445](#))}
- 9/0064 . {in which functions not related to time can be displayed (digital output to display devices of digital computers [G06F 3/14](#))}
- 9/007 . . {combined with a calculator or computing means}
- 9/0076 . {in which the time in another time-zone or in another city can be displayed at will}
- 9/0082 . {by building-up characters using a combination of indicating elements and by selecting desired characters out of a number of characters or by selecting indicating elements the positions of which represents the time, i.e. combinations of [G04G 9/02](#) and [G04G 9/08](#)}
- 9/0088 . . {by controlling light sources, e.g. electroluminescent diodes}
- 9/0094 . . {using light valves, e.g. liquid crystals}
- 9/02 . by selecting desired characters out of a number of characters or by selecting indicating elements the position of which represent the time, e.g. by using multiplexing techniques {( [G04G 9/0082](#) takes precedence)}
- 9/022 . . {using multiplexing techniques}
- 9/025 . . {provided with date indication}
- 9/027 . . {provided with means for displaying at will a time indication or a date or a part thereof}
- 9/04 . . by controlling light sources, e.g. electroluminescent diodes {( [G04G 9/0058](#) takes precedence)}
- 9/042 . . . {using multiplexing techniques}
- 9/045 . . . {provided with date indication}
- 9/047 . . . {provided with means for displaying at will a time indication or a date or a part thereof}
- 9/06 . . using light valves, e.g. liquid crystals
- 9/062 . . . {using multiplexing techniques}
- 9/065 . . . {using a drop of liquid suspended by capillary forces and moved by an electric field}
- 9/067 . . . {using mechano-optical means}
- 9/08 . by building-up characters using a combination of indicating elements, e.g. by using multiplexing techniques {( [G04G 9/0082](#) takes precedence)}
- 9/082 . . {using multiplexing techniques}
- 9/085 . . {provided with date indication}
- 9/087 . . {provided with means for displaying at will a time indication or a date or a part thereof}
- 9/10 . . by controlling light sources, e.g. electroluminescent diodes {( [G04G 9/0058](#) takes precedence)}
- 9/102 . . . {using multiplexing techniques}
- 9/105 . . . {provided with date indication}
- 9/107 . . . {provided with means for displaying at will a time indication or a date or a part thereof}
- 9/12 . . using light valves, e.g. liquid crystals
- 9/122 . . . {using multiplexing techniques}
- 9/124 . . . {provided with date indication}
- 9/126 . . . {provided with means for displaying at will a time indication or a date or a part thereof}
- 9/128 . . . {using mechano-optical means}
- 11/00 Producing optical signals at preselected times**
- 13/00 Producing acoustic time signals**
- 13/02 . at preselected times, e.g. alarm clocks
- 13/021 . . {Details}
- 13/023 . . . {Adjusting the duration or amplitude of signals}
- 13/025 . . {acting only at one preselected time}
- 13/026 . . {acting at a number of different times}
- 13/028 . . {combined with a radio}
- 15/00 Time-pieces comprising means to be operated at preselected times or after preselected time intervals ([G04G 11/00](#), [G04G 13/00](#) take precedence; {electronic timers [G04F 1/005](#)}; pulse delay circuits [H03K 5/13](#); electronic time-delay switches [H03K 17/28](#); electronic time-programme switches which automatically terminate their operation after the programme is completed [H03K 17/296](#))**
- 15/003 . {acting only at one preselected time or during one adjustable time interval}
- 15/006 . {for operating at a number of different times (cigar or cigarette receptacles or boxes with means for limiting the frequency of smoking [A24F 15/005](#))}
- 17/00 Structural details; Housings (constructional details of radio-controlled time-pieces, e.g. antennas [G04R 60/00](#))**
- 17/005 . {Time-pieces combined with games}
- 17/02 . Component assemblies
- 17/04 . . Mounting of electronic components
- 17/045 . . . {Mounting of the display}
- 17/06 . . Electric connectors, e.g. conductive elastomers
- 17/08 . Housings
- 17/083 . . {Watches distributed over several housings}
- 17/086 . . {Desktop clocks}
- 19/00 Electric power supply circuits specially adapted for use in electronic time-pieces**
- 19/02 . Conversion or regulation of current or voltage
- 19/04 . . Capacitive voltage division or multiplication
- 19/06 . . Regulation
- 19/08 . Arrangements for preventing voltage drop due to overloading the power supply
- 19/10 . Arrangements for supplying back-up power
- 19/12 . Arrangements for reducing power consumption during storage
- 21/00 Input or output devices integrated in time-pieces**
- 21/02 . Detectors of external physical values, e.g. temperature
- 21/025 . . {for measuring physiological data}
- 21/04 . using radio waves (radio-controlled time-pieces [G04R](#))
- 21/06 . using voice
- 21/08 . Touch switches specially adapted for time-pieces
- 99/00 Subject matter not provided for in other groups of this subclass**
- 99/003 . {Pulse shaping; Amplification}
- 99/006 . {Electronic time-pieces using a microcomputer, e.g. for multi-function clocks}