

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### INSTRUMENTS

#### G04 HOROLOGY

#### G04G ELECTRONIC TIME-PIECES

##### NOTES

- 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.
- 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.

- |             |  |             |   |
|-------------|--|-------------|---|
| 3/00        | <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> ) | 5/041       | . . {Correction of the minutes counter in function of the seconds' counter position at zero adjustment of the latter}   |
| 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> )   | 5/043       | . . {using commutating devices for selecting the value, e.g. hours, minutes, seconds, to be corrected}  |
| 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> )}   | 5/045       | . . . {using a sequential electronic commutator}  |
| 3/025       | . . {by storing time-date which are periodically investigated and modified accordingly, e.g. by using cyclic shift-registers}  | 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}         |
| 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> )}   | 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}            |
| 3/04        | . Temperature-compensating arrangements  | <b>7/00</b> | <b>Synchronisation</b> (radio-controlled time-pieces <a href="#">G04R</a> )   |
| <b>5/00</b> | <b>Setting, i.e. correcting or changing, the time-indication</b> (radio-controlled time-pieces <a href="#">G04R</a> )  | 7/005       | . {provided with arrangements to prevent synchronisation by interfering signals ( <a href="#">G04G 7/023</a> takes precedence)}   |
| 5/002       | . {brought into action by radio}   | 7/02        | . {by radio}  |
| 5/005       | . {Debouncing circuits}  | 7/023       | . . {provided with arrangements to prevent synchronisation by interfering signals}  |
| 5/007       | . {by using a separate register into which the entire correct setting is introduced, which is thereafter transferred to the time counters}   | 7/026       | . . {the time-piece preparing itself on set times on the reception of the synchronising signal}   |
| 5/02        | . by temporarily changing the number of pulses per unit time, e.g. quick-feed method   | <b>9/00</b> | <b>Visual time or date indication means</b>   |
| 5/022       | . . {quick-feed method}  | 9/0005      | . {Transmission of control signals}   |
| 5/025       | . . . {the time-counters first being reset to zero}  | 9/0011      | . . {using coded signals (synchronisation combined with automatic setting at regular intervals, e.g. by coded signals <a href="#">G04G 7/00</a> )}  |
| 5/027       | . . {by adding or suppressing individual pulses, e.g. for step-motor}  | 9/0017      | . {in which the light emitting display elements may be activated at will or are controlled in accordance with the ambient light}  |
| 5/04        | . by setting each of the displayed values, e.g. date, hour, independently  | 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> )} |
|             |  | 9/0029      | . . {Details}   |
|             |  | 9/0035      | . . . {constructional}  |
|             |  | 9/0041      | . . . . {Illumination devices}  |

- 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}