

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.

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|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3/00 | Producing timing pulses (driving circuits for stepping motors G04C 3/14 ; producing preselected time intervals for use as timing standards G04F 5/00 ; pulse technique in general H03K ; control, synchronisation, or stabilisation of generators in general H03L) | 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 H03K 23/00 - H03K 29/00) | 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 G06F 7/68)} | 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 G04G 7/00 , G04C 11/00)} | 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 | 7/00 | Synchronisation (radio-controlled time-pieces G04R) |
| 5/00 | Setting, i.e. correcting or changing, the time-indication (radio-controlled time-pieces G04R) | 7/005 | . {provided with arrangements to prevent synchronisation by interfering signals (G04G 7/023 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 | 9/00 | Visual time or date indication means |
| 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 G04G 7/00)} |
| 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 (G04G 9/06 , G04G 9/12 takes precedence; electro-, magneto- or acousto-optic devices in general G02F 1/00)} |
| | | 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}