

# 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</a> - <a href="#">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}	9/126	. . . {provided with means for displaying at will a time indication or a date or a part thereof}
9/0052	. . . . {using means to adjust the display in accordance with the ambient light, e.g. switching or controlling a supplementary light source}	9/128	. . . {using mechano-optical means}
9/0058	. {using a cathode ray tube as display device (displaying supplementary informative, e.g. time on TV screen <a href="#">H04N 5/445</a> )}	<b>11/00</b>	<b>Producing optical signals at preselected times</b>
9/0064	. {in which functions not related to time can be displayed (digital output to display devices of digital computers <a href="#">G06F 3/14</a> )}	<b>13/00</b>	<b>Producing acoustic time signals</b>
9/007	. . {combined with a calculator or computing means}	13/02	. at preselected times, e.g. alarm clocks
9/0076	. {in which the time in another time-zone or in another city can be displayed at will}	13/021	. . {Details}
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 <a href="#">G04G 9/02</a> and <a href="#">G04G 9/08</a> }	13/023	. . . {Adjusting the duration or amplitude of signals}
9/0088	. . {by controlling light sources, e.g. electroluminescent diodes}	13/025	. . {acting only at one preselected time}
9/0094	. . {using light valves, e.g. liquid crystals}	13/026	. . {acting at a number of different times}
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 {( <a href="#">G04G 9/0082</a> takes precedence)}	13/028	. . {combined with a radio}
9/022	. . {using multiplexing techniques}	<b>15/00</b>	<b>Time-pieces comprising means to be operated at preselected times or after preselected time intervals (<a href="#">G04G 11/00</a>, <a href="#">G04G 13/00</a> take precedence; {electronic timers <a href="#">G04F 1/005</a>}; pulse delay circuits <a href="#">H03K 5/13</a>; electronic time-delay switches <a href="#">H03K 17/28</a>; electronic time-programme switches which automatically terminate their operation after the programme is completed <a href="#">H03K 17/296</a>)}</b>
9/025	. . {provided with date indication}	15/003	. {acting only at one preselected time or during one adjustable time interval}
9/027	. . {provided with means for displaying at will a time indication or a date or a part thereof}	15/006	. {for operating at a number of different times (cigar or cigarette receptacles or boxes with means for limiting the frequency of smoking <a href="#">A24F 15/005</a> )}
9/04	. . by controlling light sources, e.g. electroluminescent diodes {( <a href="#">G04G 9/0058</a> takes precedence)}	<b>17/00</b>	<b>Structural details; Housings (constructional details of radio-controlled time-pieces, e.g. antennas <a href="#">G04R 60/00</a>)</b>
9/042	. . . {using multiplexing techniques}	17/005	. {Time-pieces combined with games}
9/045	. . . {provided with date indication}	17/02	. Component assemblies
9/047	. . . {provided with means for displaying at will a time indication or a date or a part thereof}	17/04	. . Mounting of electronic components
9/06	. . using light valves, e.g. liquid crystals	17/045	. . . {Mounting of the display}
9/062	. . . {using multiplexing techniques}	17/06	. . Electric connectors, e.g. conductive elastomers
9/065	. . . {using a drop of liquid suspended by capillary forces and moved by an electric field}	17/08	. Housings
9/067	. . . {using mechano-optical means}	17/083	. . {Watches distributed over several housings}
9/08	. by building-up characters using a combination of indicating elements, e.g. by using multiplexing techniques {( <a href="#">G04G 9/0082</a> takes precedence)}	17/086	. . {Desktop clocks}
9/082	. . {using multiplexing techniques}	<b>19/00</b>	<b>Electric power supply circuits specially adapted for use in electronic time-pieces</b>
9/085	. . {provided with date indication}	19/02	. Conversion or regulation of current or voltage
9/087	. . {provided with means for displaying at will a time indication or a date or a part thereof}	19/04	. . Capacitive voltage division or multiplication
9/10	. . by controlling light sources, e.g. electroluminescent diodes {( <a href="#">G04G 9/0058</a> takes precedence)}	19/06	. . Regulation
9/102	. . . {using multiplexing techniques}	19/08	. Arrangements for preventing voltage drop due to overloading the power supply
9/105	. . . {provided with date indication}	19/10	. Arrangements for supplying back-up power
9/107	. . . {provided with means for displaying at will a time indication or a date or a part thereof}	19/12	. Arrangements for reducing power consumption during storage
9/12	. . using light valves, e.g. liquid crystals	<b>21/00</b>	<b>Input or output devices integrated in time-pieces</b>
9/122	. . . {using multiplexing techniques}	21/02	. Detectors of external physical values, e.g. temperature
9/124	. . . {provided with date indication}	21/025	. . {for measuring physiological data}
		21/04	. using radio waves (radio-controlled time-pieces <a href="#">G04R</a> )
		21/06	. using voice
		21/08	. Touch switches specially adapted for time-pieces
		<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>
		99/003	. {Pulse shaping; Amplification}
		99/006	. {Electronic time-pieces using a microcomputer, e.g. for multi-function clocks}