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D E C I S I O N
of 25 June 1996

Case Number: T 0197/94 - 3.5.2

Application Number: 89306146.5

Publication Number: 0347251

IPC: G04C 3/14

Language of the proceedings: EN

Title of invention:
A multi-functional analog electronic watch

Applicant:
SEIKO EPSON CORPORATION

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - yes (after amendment)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0197/94 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 25 June 1996

Appellant: SEIKO EPSON CORPORATION
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 3 November 1993 refusing European patent application No. 89 306 146.5 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: W. J. L. Wheeler
Members: R. G. O'Connell
C. Holtz

Summary of Facts and Submissions

I. The appellant contests the decision of the examining division to refuse European patent application No. 89 306 146.5. The reason given for the refusal was that the subject-matter of the claims then on file did not involve an inventive step, having regard to the prior art known from the following documents:

D1: GB-A-2 166 570
D4: France Horlogère, No. 448, December 1983, pages 47 to 49, M. Leroux: "Un chronographe à quartz très... mécanique"
D6: JP-A-61 286 783 and
D7: EP-A-0 257 648.

Objections were also raised under Articles 83, 84 and 123(2) EPC.

II. In reply to communications from the board, the appellant filed a new claim 1 and amended pages of the description, and requested that a patent be granted on the basis of the application in its amended form, that is:

Claim 1, as filed with the letter of 26 October 1995, received 31 October 1995, and
Claims 2 to 10, as filed with the letter of 28 September 1992, received 2 October 1992;

Description: pages 3, 4 and 33, as filed with the letter of 26 October 1995, received 31 October 1995,
pages 2 and 5, as filed with the letter of 28 September 1992, received 2 October 1992,
pages 7, 30, 31 and 32, as filed with the letter of 28 March 1996, received 28 March 1996,
pages 1, 6, 8 to 29, and 34, as originally filed; and

Drawings sheets 1 to 25, as originally filed.

III. Claim 1 is worded as follows:

"A multi-functional analog watch having a first step motor (3, 4) for driving hands (11, 12) indicating ordinary time, at least one more step motor (15, 16; 27, 28; 32,33) for driving means to indicate at least one additional function, a first gear train (5, 6, 7, 8, 9, 10) between the first motor (3, 4) and the hands (11, 12) for indicating ordinary time, and at least one more gear train (17, 18, 19; 29, 30; 34, 35, 36, 37) between said one more step motor (15, 16; 27, 28; 32, 33) and means for indicating the additional function, wherein the ordinary time is indicated by hands (11, 12) rotatable about a central axis, and the means for indicating at least one additional function comprises at least one hand (14; 31; 38, 39) rotatable about an axis eccentric to the central axis, and peripherally disposed external operating means on the watch, characterised by said peripherally disposed external operating means on the watch including first and second stems (22, 23), the first stem (22) having pull positions in one of which alteration of the first gear train may be effected, the first stem (22) having a pull position in which correction of the ordinary time hands may be effected, and the second stem (23) having two pull positions in which different function indicating modes may be selected, by three switch operating buttons (24, 25, 26)

to effect control of the step motor driving the means to indicate additional functions, one button (26) being effective in one pull position of the second stem (23) to set an alarm time indicating hands (38, 39), a second button (24) being effective in the one pull position of the second stem (23) to set a time for a timer function, and the second button (24) and a third button (25) being effective in the other pull position of the second stem (23) to operate in a chronograph mode, and by a micro-computer (201) with a program memory (202), actuating signals being generated by the micro-computer in accordance with instructions from the memory to operate the step motors accordingly."

Claims 2 to 10 are dependent on claim 1.

IV. The appellant argued essentially as follows:

The examining division's assertion that the invention amounted merely to a well-known generalisation of prior art techniques in the horometrical industry in co-operation with common practice of micro-computer users, was superficial. Generally, if a manufacturer increased his range of multi-function watches, the cost of production increased, because in the known watches at least part of the mechanical and electro-mechanical drive for the basic hour and minute timekeeping was not common to all of the styles of watch within the range. For example, the components required to drive the hour and minute hands of a watch which also had a chronograph/timer facility would not be identical with corresponding components required to drive the hour and minute hands of a similar watch which had an alarm in place of the chronograph/timer facility. The benefit of the present invention was that the components used in the basic form of watch for hour and minute timekeeping were common to all the various forms of watch in the

range. Additional facilities were provided by additional gear trains, control buttons and hands; no replacement or modification of any of the original components was necessary (apart from the watchplate). Such a modular construction was not suggested in any of the documents D1, D4, D6 and D7 cited by the examining division.

Reasons for the Decision

1. The appeal is admissible.

2. During the proceedings before the examining division, the scope of claim 1 was restricted to the combined subject-matter of claims 1, 11, 12 and 13 as originally filed. In the appeal proceedings, claim 1 has been further amended to clarify the relationships between the first step motor and the first gear train and between the at least one more step motor and the at least one more gear train. The wording of claims 2 to 10 has not been amended. The description has been amended to acknowledge the prior art known from D1 and D4 and to adapt it to the amended claims. The amendments do not contravene Article 123(2) EPC, and in the judgement of the board, the requirements of Articles 83 and 84 EPC are met.

3. A prior art watch according to the preamble of claim 1 of the present application is disclosed in document D1. In this known watch, the peripherally disposed external operating means consist of only one pull stem (crown 9) and four buttons (6, 7, 8 and 10). The crown (9) has two pull positions: in its outermost position, it may be rotated clockwise or counterclockwise to adjust the hour and minute hands (1a, 1b) for indicating normal time; in its intermediate position, it may be rotated clockwise

or counterclockwise to set an alarm time. The button (6) is for starting and stopping a chronograph or timer function. The button (7) is for setting/resetting the chronograph or timer and button (8) is for changing from the normal time indicating mode to the chronograph mode. The button (10) is for switching the alarm on and off. Thus, the function of the crown and buttons is different from that specified in the characterising portion of Claim 1. Furthermore, the known watch does not include a micro-computer.

4. As is explained in the present application, the object of the present invention is to provide a multi-functional electronic watch, effective in lessening the cost of designing and manufacturing a range of watches having different functions.

4.1 This is made possible in the watch according to claim 1 by:

(a) arranging for the first stem (22) to co-operate with the first gear train for correcting the hands (11, 12) for indicating ordinary time, whereby the first step motor, first gear train, hands (11, 12) and the first stem (22) constitute a basic watch module for indicating ordinary time only;

(b) arranging for the second stem (23) and the switch operating buttons (24, 25 and 26) to co-operate with the at least one more step motor for controlling the at least one additional function, namely setting an alarm time, setting a timer function and operating in a chronograph mode, whereby the additional function(s) may be included or omitted without having to modify the basic watch module; and

(c) arranging for the step motors to be operated in accordance with instructions stored in the memory of a micro-computer, which can be suitably programmed for each different watch in the range.

4.2 Because of the arrangement of the stems (22 and 23) and the switch operating buttons (24, 25 and 26) and their assignment to the adjustment and selection operations as specified in claim 1, it is possible to build the watch in a modular construction, so that different functions may be included or omitted from any particular watch in the range without having to modify any of the components needed for the other functions. Only the watch face needs to be matched to the chosen functions. This reduces the cost of tooling and reduces the number of different parts which have to made and stocked. Such a rationalisation is not possible with the watch described in D1, because the crown (9) is used to adjust the normal time indicating hands and to set an alarm time.

5. Document D4 discloses a prior art analog watch with four step motors (A, B, C, D) driving respective gear trains, one for indicating normal time, the other three for counting minutes, seconds and twentieths of seconds during chronograph operation. In this watch, the peripherally disposed external operating means consist of only one pull stem (crown) and three buttons.

6. Document D6 is rather unclear, but it appears to disclose a prior art analog watch with two pull stems (crowns 3 and 4), one of which is used for adjusting an alarm time indicated by auxiliary hands. It appears that both crowns are pulled out to perform some adjustments, implying that they do not work entirely independently. No buttons are provided.

7. Document D7 discloses a credit card incorporating a micro-processor with means for digitally displaying the time. There is no suggestion that the micro-processor could be used to generate actuating signals to operate a step motor in an analog watch.

8. The board agrees with the appellant that the prior art documents D1, D4, D6 and D7 cited in the decision under appeal do not suggest the invention claimed in claim 1 of the present application. Indeed, even if these documents are considered together in an ex post facto analysis, it is not possible to choose bits and pieces from them, from which to build a watch according to Claim 1.

9. The board therefore concludes that the subject-matter of claim 1 involves an inventive step within the meaning of Article 56 EPC. The same is true for the dependent claims 2 to 10. In the judgement of the board, the application meets the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent on the basis of the main request (see paragraph II above).

The Registrar:

M. Kiehl

The Chairman:

W. J. L. Wheeler