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D E C I S I O N
of 15 November 2001

Case Number: T 0244/00 - 3.5.1

Application Number: 90105726.5

Publication Number: 0390041

IPC: H04B 1/20, G08C 23/00

Language of the proceedings: EN

Title of invention:
Remote-control apparatus for electronics apparatus

Patentee:
MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

Opponent:
Interessengemeinschaft für Rundfunkschutzrechte GmbH
Schutzrechtsverwertung & Co. KG

Headword:
Remote-control/MATSUSHITA

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - no"

Decisions cited:
T 0641/00

Catchword:
The graphic design of menus is, as a rule, not a technical aspect of a menu-driven control system. Nor is the practical use of such menus genuinely a problem which the skilled person, in his function as a technical expert, is confronted with. (Point 12 of the Reasons for the Decision)

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0244/00 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 15 November 2001

Appellant: (Opponent)
Intressengemeinschaft für Rundfunkschutzrechte GmbH
Schutzrechtverwertung & Co. KG
Bahnstrasse 62
D-40210 Düsseldorf (DE)

Representative:
Eichstädt, Alfred, Dipl.-Ing.
Maryniok & Partner
Kuhnbergstrasse 23
D-96317 Kronach (DE)

Respondent: (Proprietor of the patent)
MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
1006, Oaza-Kadoma
Kadoma-shi
Osaka 571-8501 (JP)

Representative:
Jung, Schirdewahn, Lemke
Clemensstrasse 30
D-80803 München (DE)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 21 December 1999 concerning maintenance of European patent No. 0 390 041 in amended form.**

Composition of the Board:

Chairman: S. V. Steinbrener
Members: R. R. K. Zimmermann
S. C. Perryman

Summary of Facts and Submissions

I. The appeal concerns European patent No. 0 390 041 granted for a remote-control apparatus in the field of audio video systems; the patent claiming the 28 March 1989 as date of priority took effect on 5 June 1996.

II. The appellant filed an opposition against the patent on 5 March 1997, requesting revocation of the patent in its entirety for lack of novelty and inventive step as well as for added subject-matter, i.e. on the grounds for opposition set out in paragraphs (a) and (c) of Article 100 EPC.

III. In an interlocutory decision posted in writing on 21 December 1999, the opposition division decided that the patent and the invention to which it relates were found to meet the requirements of the Convention if the amendments made by the proprietor during the opposition proceedings were taken into account.

IV. The appellant filed a notice of appeal against the decision on 18 February 2000, requesting reversal of the appealed decision, revocation of the patent in its entirety, and oral proceedings as a subsidiary measure; the appeal fee was paid the same day. In a written statement filed on 15 April 2000 the appellant set out the grounds of appeal. Following a reply filed by the respondent (the patent proprietor) and a communication pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, oral proceedings took place before the Board on 15 November 2001, at the conclusion of which the Board announced its decision on the basis of the following requests:

The respondent requested that the decision under appeal be set aside and the patent be maintained on the basis of claim 1 as submitted at the oral proceedings on 15 November 2001. The claim reads as follows:

"A remote-control apparatus comprising:
a transmitter (1) comprising:
a cursor key (5),
an enter key (6) and a menu key (4) having switch means, and
a wireless signal generating means (1A) for transmitting a wireless signal which is converted into a predetermined code corresponding to the operation of said cursor key (5), enter key (6) and menu key (4),
a receiver (2) comprising:
a receiving part (41) for receiving said wireless signal transmitted from said transmitter (1) and decoding the received signal,
a connecting means (31, 37) for connecting at least one electronic apparatus (46-50) to said receiver (2) on the basis of the received signal,
a video signal memory means (36) for storing video image data for displaying icons (20) of functional information for operating said electronic apparatus (46-50),
display means (35) for displaying a video image output from said electronic apparatus (46-50) and a video image output from said video signal memory means (36), and
a display control apparatus (38) for controlling the output of a video signal from said video signal memory means (36), and for displaying an image of a cursor (20) on a display screen of said display means (35) on the basis of a signal transmitted by the operation of the cursor key (5),
wherein,
said cursor key (5) has at least four switches (5A-5H) operatable in single or pairwise action in at least 6

directions,
said cursor (20) is shiftable in the XY-plane of said display screen (15) on receipt of a signal due to a manipulation of said cursor key (5) in compliance with a rule,
positions to which said cursor is shiftable are limited to predetermined positions depending on a present position of said cursor (20),
jump of said cursor (20) to one of said predetermined positions is performed on receipt of a signal due to a manipulation of a predetermined switch of said cursor key (5),
and jump of said cursor (20) to remaining predetermined positions is performed on receipt of a signal due to a manipulation of an arbitrary other one of predetermined plural switches of said cursor key,
there is a predetermined rule between the switches (5A-5H) and shifting the present position of the cursor (20) to a next position,
said rule being stored in a memory and including the relation between the possible next positions of the cursor (20) with respect to the present position thereof prescribed in advance on the basis of a subrule of said rule, which subrule concerns the possible directions of shift operations of the cursor (20) from its present position,
said subrule allowing cursor jumps between two predetermined cursor positions which, in an imaginary manner, are connectable by a slanting line,
that said subrule selects the switches operatable for shifting the cursor (20) from the present position,
this selection incorporating inactive states of switches, that said subrule includes the possibility of jumps of the cursor (20) to different positions

depending on the present position when operating the same switch, and that said subrule includes the possibility of selecting different switches being in the inactive state depending on the present position of the cursor (20)."

The appellant requested that the decision under appeal be set aside and that the European patent No. 0 390 041 be revoked.

V. The appellant based the reasons for its request on various objections, *inter alia* on that the claimed subject-matter was rendered obvious by the publication of G. ZEISEL et al.: "An Interactive Menu-driven Remote Control Unit for TV-receivers and VC-recorders" in IEEE TRANSACTIONS ON CONSUMER ELECTRONICS vol. 34, No. 3, August 1988, pages 814 to 816; this document had already been cited as document E1 in the first instance. In addition, the appellant referred, for the first time in the appeal proceedings, to document DE-A-3 523 270 published in 1987 and cited as document E5.

According to the appellant the subject-matter of claim 1 lacked an inventive step since all essential features followed explicitly or at least in a straightforward manner from Figures 1 to 3 and the corresponding text of document E1. As was the case for the alleged invention, the cursor was moved in slanting or diagonal direction when for example the volume icon was activated and the cursor jumped to the adjustment bar of the main menu shown in Figure 3 of document E1. Furthermore, moving the cursor upwards, starting from the volume icon, was impossible so that the predetermined rule stored in the memory for shifting the cursor had to incorporate inactive states of the cursor switches as defined in claim 1.

VI. The respondent disagreed: the appellant misinterpreted the claim wording and overdid the interpretation of document E1. The inventor deserved the merits to have first envisaged the important advantages achievable in handling and performance of a remote-control apparatus by allowing direct jumps between menu items diagonally arranged to each other without intermediate steps as they were necessary in the prior art where the cursor could only be moved either in the horizontal or the vertical direction at one time.

Document E1 disclosed a cursor key comprising four switches, which allowed the selection of horizontal and vertical shift directions only. The result was a continuous crosswise cursor shift over the screen which compared with the invention was tedious and time-consuming.

To improve this situation the invention proposed a cursor control which allowed direct jumps between the predetermined positions of the icons in more than six directions according to rules and subrules stored in the memory as claimed, including the possibility that some of the switches might be, at some times depending on the current cursor position, inactive. This was a technical contribution to the prior art which clearly involved an inventive step.

Reasons for the Decision

Admissibility of the appeal

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC and is thus admissible.

Amendments

2. The amendments to claim 1 have a clear support in the application as originally filed and do not extend the scope of protection; they thus meet the conditions set out in Article 123(2)and (3) EPC.

Patentability: inventive step

3. As to the merits of the case, however, the claimed invention does not meet the patentability requirement of inventive step (Articles 52(1) and 56 EPC) for the reasons as follow.

4. According to Article 56 EPC an invention shall be considered as involving an inventive step if (and only if), having regard to the prior art, it is not obvious to the skilled person. The boards of appeal have developed and applied the method known as the "problem-and-solution approach" for assessing inventive step (see EPO publication "Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001," EPO 2002, pages 101 ff.), according to which an invention is understood as a technical solution which overcomes a technical problem present in the prior art.

5. Both parties to the appeal proceedings, as well as the decision under appeal, considered document E1 as the most relevant piece of prior art.

Document E1 concerns an interactive menu-driven control system for television receivers and video cassette recorders. In the experimental implementation of the system as described on page 816, right-hand column, last two paragraphs, "menu images" as shown in Figures 2 to 6 of the document are stored by a Personal Computer and displayed on the PC monitor (instead of on the TV-screen in a practical realisation). By means of

a Remote Control unit RCU comprising "only one composed control-button", either a button/stick or a sensing surface (see document E1, Figure 1), the user moves a cursor over the TV-screen in at least four possible directions and selects an appropriate RCU function displayed in the menu by positioning the cursor over the function icon and pressing the control button once.

6. The features of the remote control system as far as disclosed in Figures 1 and 2 thus in substance correspond to all the features appearing in claim 1 before the word "wherein", but leave it open whether the RCU allows the user to move the cursor in more directions than the four illustrated by right/left and up/down arrows in Figure 1. The text on page 815, left-hand column indicates that "the function-windows will be selected simply by horizontal and vertical movements of the cursor". According to this statement the user may move the cursor over the TV screen only in a crosswise manner, but not along a slanting direction.

In the lines which follow, document E1, however, proposes an embodiment for a "fast and simple handling" in which "the positioning may be limited only to the raster-nodes of the meaningful locations" (page 815, left-hand column, lines 19 ff.). Such an embodiment requires the cursor to jump, instead of continuously moving between menu items.

7. Regarding in particular the jump which is necessary to move from the menu item VT to the menu item ADJUST (or vice-versa) in the upper right corner of the main menu shown in Figure 3, a crosswise movement of the cursor would require an additional in-between stop at a meaningless location where no menu item is available. The skilled reader of document E1 would thus expect that the cursor will jump directly between these two items, which means in the phraseology of present

claim 1, that the remote control unit allows "cursor jumps between two predetermined cursor positions which, in an imaginary manner, are connectable by a slanting line".

This feature, however, has to be read in connection with the claim feature defining that the four switches of cursor key are "operatable in single or pairwise action in at least 6 directions". According to the present invention, therefore, the claimed apparatus is specifically designed for allowing cursor jumps along a "slanting line" from each and every menu position, which clearly cannot be said from the prior art RCU.

8. Furthermore, the known RCU transmitter apparently sends the direction signal to the receiver (see Figure 2) even if in this direction no menu item is available for selection, for example if the user command would lead the cursor outside of the menu region. Since an interactive control for a consumer TV-set should respond in an intuitively understandable manner the skilled reader will expect in such a situation that the cursor does not move at all. To use the phraseology of present claim 1 again, this means that in document E1 there is "the possibility of selecting different switches being in the inactive state depending on the present position of the cursor".

9. In addition, document E1 indicates that the main menu's "logical structure is hierarchical and implements the principles of a tree. It results in concatenated control functions to be selected by the user ..." (page 815, left-hand column, lines 8 ff.). This logical structure and the graphic arrangement of the menu icons determine, for each meaningful location - and thus for each possible cursor position and direction signal, how to move the cursor and to execute a menu item if activated, or in terms of present claim 1, how to shift

the cursor "in the XY-plane of said display screen on receipt of a signal due to a manipulation of said cursor key" and "the relation between the possible next positions of the cursor with respect to the present position thereof prescribed in advance".

These data must be available to the control program running on the PC. The skilled reader will thus infer from document E1 that they are stored in an appropriate form in some memory to which the PC has access.

10. The claimed invention apparently accomplishes these control functions by using a "rule" and a "subrule" (see claim 1, last four paragraphs). Regarding the claim definitions given, these "rules" are indeed of somewhat obscure nature: being stored in a memory, including the relation between cursor positions, concerning cursor movement directions, allowing cursor jumps, selecting switches, including the possibility of jumps of the cursor to different positions and including the possibility of selecting different switches being in the inactive state. This kind of claim wording requires the construction of the claim by referring to the description and drawings. From there, however, it becomes clear that the terms "rule" and "subrule" are a mere definitional abstraction of a kind of cursor state transition table, the "reference table" (see Figures 7(a) and (b) with the accompanying parts of the description) and of the routine controlling the cursor movement (see Figure 8, in particular step 2).

Other than the term "table", the terms "rule" and "subrule" as used in claim 1 and the rest of the patent specification do not refer to any particular programming paradigm or data construct but rather designate, on an abstract level, the relation between the possible cursor key signals and the allowed cursor movements and the inactive states, respectively. Such

kind of "rules", however, must - in the one or other form - also be used in the control of the E1 system. Otherwise, for example, the "meaningful location" to which the cursor may jump next could not be determined.

11. In summary, the invention inherent to claim 1 is distinguished from the prior art system of document E1 only in that the at least four switches (of the cursor key) are operatable in single or pairwise action in at least 6 directions.

12. The particular cursor key of the invention allows direct cursor jumps along "slanting lines" in diagonal directions, for example, which seems *prima facie* to facilitate the selection of menu items.

The number of useful directions for the cursor movement, however, is basically a question of the graphic design of the menu: evidently, the arrangement of the menu items may render a two-dimensional cursor control completely pointless, or may - on the contrary - render diagonal cursor movements a compelling function of the cursor control.

As a rule, the graphic design of menus is practically free of technical constraints, thus allowing any desired artwork to be implemented. This means that the arrangement of the menu items on the screen, if it is not exceptionally determined by technical considerations, is not a technical aspect of a menu-driven control system.

Nor is it a technical aspect as to along which lines and in how many directions the user wishes to move the cursor from one item to another. The practical use of

menus is the concern of the artist designing the menu or of the end user of the system, but not genuinely a problem which the skilled person, in his function as technical expert, is confronted with.

13. For the purpose of the problem-and-solution approach, however, the problem must be a technical problem, which the skilled person in the particular technical field might be asked to solve at the priority date (see, for example, T 641/00 Two identities/COMVIK, to be published in OJ EPO). Therefore, in the present case the technical problem must be formulated in a more limited way than on the basis of the alleged advantages moving a cursor diagonally over the TV screen.

Considering the scope of technical knowledge and competence the skilled person is expected to have, the actual technical problem resides in providing an appropriate cursor key, i.e. essentially the hardware, enabling the user to move the cursor in such six or more directions, let us say for sake of clarity in the four additional diagonal directions ±45° and ±135°.

14. It is undisputed and acknowledged in the present patent specification that the RCU of document E1 is provided with one button including four switches, the right and left switches for horizontal and the up and down switches for vertical movement (see column 2, lines 43 to 55).

It is a very common method for measuring a physical vector quantity, in particular for measuring its direction, to measure simultaneously its components, essentially along the coordinate axes, and to combine the measured values according to a well-known algorithm to derive, for example, the direction angle. The same principle is applied in the well-known computer "mouse"

and in other two-dimensional input devices like joysticks etc. and e.g. also forms the basis of the remote control device described in document E5.

Having regard to the common technical knowledge therefore, the skilled person, when trying to find a solution to the said technical problem, is expected to consider a modification of the RCU of document E1 to enable the simultaneous detection of the x- and y-components of the direction signal. This implies that the button/stick can be moved by the user diagonally so that the right (or left) switch and the up (or down) switch may be operated simultaneously, thereby producing the corresponding horizontal and vertical component signals of the button/stick motion, and these signals are combined for deriving the right/left, up/down or diagonal movement command for the cursor. Since the technical contribution which the claimed invention provides to the prior art does thus not amount to more than making such simple and, from a technical point of view, straightforward considerations, the invention does not involve an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

D. Sauter S. V. Steinbrener