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**Datasheet for the decision
of 17 December 2015**

Case Number: T 1108/12 - 3.2.04

Application Number: 08104346.5

Publication Number: 2008546

IPC: A47B49/00, F16M11/18,
G08C17/02, G08C21/00

Language of the proceedings: EN

Title of invention:

A user-friendly TV stand rotating mechanism and method

Applicant:

Vestel Elektronik Sanayi ve Ticaret A.S.

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (yes)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 1108/12 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 17 December 2015

Appellant: Vestel Elektronik Sanayi ve Ticaret A.S.
(Applicant) Organize Sanayi Bölgesi
45030 Manisa (TR)

Representative: Cayli, Hülya
Paragon Consultancy Incorporated
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GOP 06540 Ankara (TR)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 2 November 2011
refusing European patent application No.
08104346.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman E. Frank
Members: J. Wright
C. Heath

Summary of Facts and Submissions

I. On 23 December 2011 the appellant (applicant) lodged an appeal against the examining division's decision of 2 November 2011 refusing the European patent application No. 08104346.5 and paid the prescribed fee at the same time. The statement of grounds of appeal was received on 1 March 2012.

II. The division held that the subject matter of the independent claims lacked inventive step in the light of the following documents:

D1: US 20050179618 A

D2: JP 7 147656 A

In addition to D1 and D2, the following documents were cited in the search report:

D3: US 20060171705 A

D4: US 20030058372 A

D5: US 5250888

D6: WO 02071315 A

D7: GB 2343760 A

The following document was cited in D1:

D8: US5504477 A

III. In a communication of 12 August 2015 the Board raised the issues of added subject matter, Article 123(2) EPC and clarity and support from the description, Article 84 EPC.

IV. The appellant requests that the decision be set aside and a patent be granted on the basis of claims 1 to 4

and description pages 1 to 4, all filed on 8 October 2015 and figures 1 to 4 as originally filed.

V. The independent claims according to the main request read as follows:

1. "A system for a TV set including a motorized television stand that can turn according to the three dimensional position of the user and a remote control device that can transmit RF signals and a microprocessor circuit intended to control the turning television stand; comprising;

- at least three sensors that are positioned separate from each other which can receive the signals emitted by the said remote control device, wherein said microprocessor circuit can detect the position of the user by comparing the power levels of the signals received by the said sensors;

- at least one motor allowing the said stand to move vertically and horizontally to turn the said rotating television stand according to the estimated position of the user

characterized in that said system further comprises

- a reference table for assuming the position of the user and for determining how much and to which direction the said motor will turn according to the result of the comparison of the power level of the signals received by said sensors using the microprocessor circuit aimed for detecting the position of the user".

3. "A method for a TV set including a motorized television stand that can turn according to the three dimensional position of the user, which includes the steps of

- sending a signal from the location of the user by a remote control device that can send RF signals

- detection of the signals sent from the said remote control by the at least three sensors located on the TV;

- transfer of the amplitudes of the signals detected by the said sensors to a comparison unit;

- comparing the amplitudes of the signals detected by the said sensors in said comparison unit;

characterized in that said method further comprises the steps of;

- estimating of the position of the user using a reference table according to result of said comparison;

- giving the required movement commands to the motor that can move the TV stand vertically and horizontally depending on the said estimation".

VI. The appellant argued as follows:

D1 and D2 both disclose TV stands that orientate a TV towards a remote control. In D1 this is done by detecting periodic signals emitted by the remote control. D1 also discloses a memory table. However this is not used for equating compared power levels of signals received from three different sensors to TV

stand motor commands. Rather the memory of D1 stores motor commands with respect to user's preferred stand movements. Nor does D2 disclose the claimed memory feature, therefore the skilled person would not arrive at the claimed subject matter by combining D1 with D2. The amendments carried out to the claim make it clear and supported by the description. They all have a basis in the application as filed.

Reasons for the Decision

1. The appeal is admissible.
2. Background
 - 2.1 The present invention concerns a rotating TV stand mechanism for orientating a TV screen towards a user (application, page 1, lines 4-11). The object of the invention is to make a more user-friendly stand that, with a single command on the remote control, orientates the screen towards the user (application, page 2, lines 4-7).
3. Article 123(2) EPC and clarity, Article 84 EPC
 - 3.1 Present claim 1 is based on claim 1 as originally filed. Apart from the reordering of certain features the claim has been modified as follows:
 - a) by specifying that the signals transmitted by the remote control device are *RF* signals, that is radio frequency signals;
 - b) by specifying that the three sensors are rather than merely can be positioned separate from each other;

c) by defining that the microprocessor that can detect the position of the user is the *said* microprocessor intended to control the turning televisions stand; and

d) that the system further comprises a reference table according to the characterising feature of the claim.

Feature a) (signals are *RF*) is based on claim 2 as filed. Furthermore the signals mentioned throughout the description are RF signals (for example, page 2, lines 18, 31, page 2, line 3, lines 20-22).

Feature b) (sensors positioned separately) merely stipulates an option present in original claim 1.

Feature c) has its basis in the description and figure 1, said to show the structure of the invention, and in which one and the same microprocessor controls the turning mechanism and where one and the same microprocessor detects user position and controls the turning of the stand (page 2, line 9 and figure 1).

Feature d) is a literal incorporation into claim 1 of the features of original dependent claim 3, which depended on claim 1.

Thus the Board considers that the features of claim 1 have a basis in the application as filed.

3.2 Independent claim 3 is based on original claim 5, but has been amended so that it sets out the method steps necessarily carried out by the apparatus defined in claim 1. In particular the claim now specifies signals emitted by the remote control as RF signals, specifies amplitude comparison of these signals and on the basis of this estimating user position using a reference

table and commanding the vertical and horizontal movement of the TV stand accordingly.

Therefore for the same reasons as given for claim 1, the Board considers that claim 3 has a basis in the application as filed. Furthermore, dependent claim 2 corresponds to claim 4 as filed and dependent claim 4 to original claim 6.

3.3 The description, besides acknowledging additional prior art, has only been adapted to the amended wording of the claims by deleting non-claimed embodiments. Therefore, all amendments meet the requirements of Article 123(2) EPC.

3.4 The Board furthermore finds that the claims are clear and supported by the description.

In particular, specifying RF signals in the independent claims excludes light signals, which the description suggests would not work (page 3, lines 20 to 22). By the same token, specifying that three sensors are positioned separately from each other is implicitly a necessary condition for determining user position (page 3, lines 3 to 8). Lastly, clarifying that the microprocessor mentioned in the claim is the same microprocessor makes the claim clear in itself and consistent with the description (see above point 3.1). Thus in these regards the independent claims 1 and 3 are now clear and supported by the description. The Board sees no reason why the claims should otherwise not be clear or not supported by the description.

4. Novelty

The issue of novelty was not raised by the examining division, nor has the Board any reason to consider that the subject matter of the independent claims lacks novelty.

5. Inventive step of claim 1

5.1 The examining division refused the application because it found that independent claims 1 and 3 of the claim versions then on file lacked inventive step having regard to D1 and D2. It is common ground that document D1 discloses the closest prior art.

In particular D1 (see abstract, paragraphs [0006], [0031], [0032] and figure 1) discloses a system for a TV set with a motorised stand for turning to the user's position (paragraph [0006] and for example claim 2). The system includes a remote control 36. By pressing a "follow mode" button 48, the remote control transmits (periodic) signals to a sensor 50 and a microprocessor circuit 35 that can receive the signals from the remote control and detect the position of the remote control, in other words where the user is. The system then moves the stand horizontally and vertically according to the user's estimated position (paragraph [0031]).

5.2 Thus the Board considers that D1 discloses all features of claim 1 except the following:

- i) the signals from the remote control are RF signals;
- ii) the system has at least three sensors;
- iii) the microprocessor compares the power levels from the sensors to detect the user's position; and
- iv) a reference table for assuming the position of the user and for determining how much and to which direction the said motor will turn according to the

result of the comparison of the power level of the signals received by said sensors using the microprocessor circuit aimed for detecting the position of the user.

- 5.2.1 With respect to feature i), the Board notes that D1 merely specifies they are periodic without saying what kind of signals they are.
- 5.2.2 Regarding feature ii), the Board considers that D1 discloses only a single sensor or "receptor" 50 (see paragraph [0032] and figure 1).
- 5.2.3 With respect to feature iii), in the Board's view, since the system of D1 only has one sensor 50, no comparison to signals detected by any other sensor is possible. At best triangulation (paragraph [0031]), which the skilled person knows typically involves determining the line of sight to a signal source by comparing the signal power received by a single sensor pointed in different directions from a known point, might involve comparing power levels of signals received by the single sensor 50 at different times. However it would not involve comparing signal power received by different sensors at different positions. Nor does the Board see this feature as disclosed in D1 paragraph [0025] as the impugned decision found (decision, reasons, second paragraph). Paragraph [0025] discloses teaching the processor desired arc movements of the monitor using the X and Y axis arrow key button 38 on the remote control to manually adjust TV position, but says nothing about tracking a position of a remote control by comparing signal powers.
- 5.2.4 Finally, regarding feature iv), the Board notes that whether or not paragraph [0024] of D1 discloses a

reference table of some kind (decision page 3, first paragraph), at best it would be a table of user-programmed X, Y coordinates defining an allowable movement arc of the TV, but not a table of motor commands corresponding to the results of power-level comparisons as claimed.

5.3 Formulating the objective technical problem

The stated object of the invention is to provide a TV stand that can detect the position of the user and turn the TV screen to align with the detected user position with a single command (application as filed, page 2, lines 4-7).

As explained above (point 5.1), D1 with its follow mode button 48 (paragraph [0031]), already provides a solution to this problem.

It is therefore necessary to reformulate the problem on the basis of associated effects of the claimed features in order to arrive at the objective technical problem addressed by the claimed invention in the light of the closest prior art.

According to differing features (i) to (iii), user position is determined by comparing the power levels of RF signals received by three sensors (see also application as filed, page 3, lines 5-10). D1 does this in a different way, for example by triangulation. Turning to the final differing feature (iv), a reference table of power level comparison/motor instruction data as claimed is seen to simplify, that is make more efficient, the process of converting the results of power level comparisons into motor drive instructions (application as filed, page 3, line 19).

Thus the Board considers that the objective technical problem can be formulated as follows: for a TV system with screen and remote control which can orientate the screen to align with the remote control, such as that of D1, how to provide an alternative way of detecting user position whilst simplifying the system. This problem is solved by the apparatus as set forth in claim 1, in short by comparing power levels of RF signals from the remote control received at three separately positioned sensors, and using a reference table to store these comparisons and their associated motor commands.

5.4 The Board holds that the solution defined in claim 1 is neither known from nor suggested by available prior art.

5.4.1 D1 itself does not hint at the claimed solution. Although it suggests that, besides triangulation (see above point 5.2.3), a variety of methods could be used to determine position, the only other one explained in D1 is GPS tracking. In other words triangulation of satellite signals, not relative power strength as claimed. Nor does document D8 (see column 3, line 18 to column 4, line 6 and figure 1), mentioned in D1 paragraph [0031], shed light on how a TV position might be controlled, let alone suggest tracking position as claimed. It discloses a way of tracking actors' positions on a stage using coded *sound* signals, not RF signals. Their relative *time* of receipt is used to detect position, not their relative signal *powers* (column 4, lines 1-3).

5.4.2 Nor is the Board convinced that the claimed solution is rendered obvious by D2. D2 discloses a TV system (see

abstract, figures 1 to 3, and paragraphs [0016] to [0018] and [0030] to [0033]) where the screen 1 is orientated towards a remote control 5 when a button 8 is pressed. A sender 7 on the remote control 5 sends an ultrasonic signal, not an RF signal. The signal is received at three separate detectors 3A-3C. As can best be seen in figure 2, it is the relative *time* of receipt of these signals at the detectors, not their relative *power* which is used to detect position (see also paragraphs [0016] to [0018] and [0030] to [0033]). Nor does D2 suggest using a reference table. Thus, tasked with solving the objective technical problem, at best the combination of D1 and D2 would lead the skilled person to modify D1 to detect user position by comparing flight times of ultrasonic signals at three detectors, but it would neither lead to comparing power levels of RF signals received by three detectors, nor using a reference table as claimed.

- 5.4.3 Likewise the Board has no reason to consider the remaining documents cited in the search report would lead the skilled person to the subject matter of claim 1 in an obvious manner. In particular none discloses detecting position by comparing signal strength of RF signals received at three sensors from a remote control, nor using a reference table to control motors as claimed.

D3 discloses a camera tracking a portable transmitter, by direction finding (paragraph [0011]), but does not say which direction finding method is used, let alone mention one that compares signal powers. D4 discloses a system that orientates a television towards a user with the remote control (abstract and paragraph [0012], last sentence). However, how the user with the remote control is tracked is not explained. D5 discloses a

television that aligns itself towards a light beam using a single sensor (Column 2, lines 42-60 and figures 2 and 3). D6 and D7 disclose orientating a TV towards a user by tracking the user, not the remote control. D6 tracks the user with a camera, D7 by detecting their body heat (see their respective abstracts).

- 5.5 The Board concludes that the combination of features of claim 1 is not obvious and so the subject matter of claim 1 involves an inventive step, Article 52(1) EPC with Article 56 EPC.

Independent claim 3 essentially defines the different method steps necessarily implied by use of the system defined in claim 1. Therefore the Board's considerations with respect to claim 1 apply *mutatis mutandis* to claim 3.

6. In view of the above, independent claims 1 and 3, together with dependent claims 2 and 4, the amended description and the original drawings, form a suitable basis for the grant of a patent.

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 based on the following application documents:

Claims: Numbers 1 to 4 filed with letter of 8 October 2015.

Description: Pages 1 to 4 filed with letter of 8 October 2015.

Drawings: Figures 1 to 4 as originally filed.

The Registrar:

The Chairman:



G. Magouliotis

E. Frank

Decision electronically authenticated