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**Datasheet for the decision
of 27 July 2006**

Case Number: T 0933/03 - 3.5.04

Application Number: 97307406.5

Publication Number: 0831639

IPC: H04N 1/48

Language of the proceedings: EN

Title of invention:

Image device

Applicant:

Hewlett-Packard Company

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 84, 56

Keyword:

"Clarity (yes) after amendment"

"Inventive step (yes) after amendment"

Decisions cited:

-

Catchword:

-



Case Number: T 0933/03 - 3.5.04

D E C I S I O N
of the Technical Board of Appeal 3.5.04
of 27 July 2006

Appellant: Hewlett-Packard Company
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Palo Alto, CA 94304 (US)

Representative: Jehan, Robert
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 23 May 2003
refusing European application No. 97307406.5
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: F. Edlinger
Members: C. Kunzelmann
J. Willems

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse European patent application No. 97 307 406.5.

II. In a fax dated 19 June 2006 the appellant filed new claims 1 to 11 and replacement pages 5 to 9 and 29 of the description.

III. Claim 1 reads as follows:

"An image-related device comprising:
a detector (25, 214) for generating a signal array (R, G, B) in response to patterns of received light;
means (22, 141) for illuminating at least a portion of an object (20, 221);
means (24) for placing on the detector light (144) from an illuminated portion of the object so that the signal array represents the object visually;
means (413) for pulsing the illuminating means, said pulsing means including adjustment means (412, 412') operable to adjust the durations (R, G, B) of light pulses of different colors, respectively, to control color balance;
means (401 - 407, 407', 419) for selecting, at a variable scan velocity, successive portions of such input object for placing by the placing means;
means (415 - 429) for reading signals from the detector at intervals (RD) to generate such signal array;
wherein said variable scan velocity of said selecting means causes the reading intervals to vary, and the pulsing means comprise means (403 - 406, 413) for setting durations of light pulses such that the total

exposure time for the colors is shorter than the total time available for each pixel and said pulsing means are operable to pulse the illumination means in synchronisation with positional information relating to the position of said variable scan velocity selecting means, so that a dark interval occurs before substantially every pulse, said dark interval allowing compensation for variations in the reading intervals caused by variations in scan velocity by said selecting means."

Claims 2 to 11 are dependent on claim 1.

[The features set in italics constitute amendments over claim 1 on which the decision under appeal was based.]

IV. The examining division's reasons for refusing the European patent application can be summarised as follows:

Claim 1 then on file did not comply with the requirements of Article 84 EPC because the term "having [sic] substantially no means..." was vague and unclear and left the reader in doubt as to the meaning of the technical features to which it referred. Even the passage in the description cited by the applicant (page 8, lines 10 to 13) did not make clear which compensations were considered necessary and which were considered unnecessary.

[The last feature of claim 1 then on file read as follows:

"wherein said device comprises substantially no means for adjusting amplitude of signals from the detector to

compensate for variations in said variable scan velocity."]

Furthermore, the image-related device of claim 1 did not involve an inventive step (Article 56 EPC) in view of the following prior art documents:

D1: EP 0 452 759 A2 and

D2: EP 0 411 954 A2.

D1 disclosed an image-related device having all the positively formulated features of claim 1. Variable scan velocity was quite a common characteristic of scanning apparatuses and was - if not even implicit in D1 - for example disclosed in D2. According to D2 (column 6, lines 34 to 42), variable scan velocity was compensated by suitable timing and synchronizing means. Thus it was also obvious that no unnecessary means were provided for adjusting the amplitude of signals from the detector to compensate for variations in the variable scan velocity.

V. The appellant essentially argued as follows:

In the device of present claim 1, the durations of light pulses were set so that a dark interval occurred before substantially every pulse. The advantages of such pulsing means were clearly set out at pages 9 and 21 of the present application, namely that whatever happened in terms of variation and the scanning velocity, the illuminating means had sufficient time to provide the required illumination. Complicated or expensive corrections due to a variable scanning

velocity were not necessary. The examining division raised no reasoned objection against this feature. New claim 1 should therefore be allowable.

D1 and D2 disclosed apparatuses having different functions, different purposes and operated in different manners. Different scanning speeds were not mentioned and unlikely in the context of D1. A skilled person would not have considered D2 because D2 provided a very specific type of combined asynchronous and synchronous scanning. If variable scan velocities had been envisaged in D1, a skilled person would have adjusted the amplitude of signals from the detector to compensate for variations.

VI. It follows from the appellant's written submissions that the appellant requests that the decision of the examining division be set aside and a patent be granted on the basis of the following documents:

Description:

pages 1 to 4, 10 to 28, 30 to 37 as originally filed
page 38 as filed with the letter of 6 August 2002
pages 5 to 9 and 29 filed in the fax dated 19 June 2006

Claims:

No. 1 to 11 filed in the fax dated 19 June 2006

Drawings:

Sheets 1/18 to 18/18 as originally filed

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments (Article 123(2) EPC)*

Claim 1 is mainly a combination of original claims 1 and 3 as filed. The feature of claim 1 which was objected to in the decision under appeal as unclear ("substantially no means for adjusting amplitude...") has been removed. Further features were added for specifying the pulsing means as disclosed in the application as filed, in particular on page 9, lines 1 to 12; page 9, lines 22 to 25; page 29, line 23 to page 30, line 12 and in Figures 7 to 11. The dependent claims are disclosed in the dependent claims as filed, and the description was adapted to the amended claims. The amendments therefore do not infringe Article 123(2) EPC.

3. *Clarity (Article 84 EPC)*

Since the feature objected to as unclear in the decision under appeal has been removed from the claims, this objection does not apply anymore. Nor does the passage in the description (page 8, lines 10 to 13) referred to in the decision under appeal render the claims unclear because this passage refers to the meaning of "substantially no means" and claim 1 now specifies the essential features of the invention in positive terms, in particular means for setting durations of light pulses so that a dark interval occurs before substantially every pulse and variations in scan velocity can be compensated for. Variations in

the scan velocity can thus be corrected up to the fastest scan speed anticipated during operation (see also page 9, lines 7 to 9; page 20, line 27 to page 21, line 27) without requiring additional means for adjusting amplitude of signals from the detector (see also page 8, lines 5 to 13; page 29, lines 9 to 15). The reasons for refusing the application pursuant to Article 84 EPC thus do not apply to the present claim 1 nor to any of its dependent claims 2 to 11.

4. *Novelty (Article 54(1) EPC)*

None of the available prior art documents discloses an image-related device comprising means for setting durations of light pulses as set out in claim 1. Thus the subject-matter of claim 1 is considered to be new.

5. *Inventive step (Article 56 EPC)*

5.1 It is common ground that D1 may be considered as an appropriate starting point for the assessment of inventive step because it discloses an image-related device as specified in present claim 1 except for the last group of features relating to the means for setting durations of light pulses.

D1 discloses a scanner system (see Figures 5 and 6) for digitizing 35 mm transparencies. The scanner system may comprise a linear light source of red, green and blue LEDs. D1 emphasises the advantages of solid-state illumination (e.g. switching times in the microsecond range) and discloses pulsing the light so as to control exposure times by the duration of the pulse applied to the LEDs of each individual colour. The LEDs are

operationally synchronised to a CCD sensor by a colour sequencer to provide colour separation. A coarse and fine adjustment of colour balance can thus be provided (see Abstract; column 5, lines 48 to 56; column 6, line 9 to column 7, line 43; Figure 9; claims 5, 6 and 8).

Variations of reading intervals caused by variations in scan velocity and any possible compensation measures are not discussed in D1. But D1 uses different velocities for different scan resolutions (for instance for preview and actual scan; see column 3, lines 34 to 55; column 4, lines 50 to 56 and Figure 1: 10 sec, 60 sec). Any desired scale may be achieved by adjusting the step rate of a stepper motor (D1, column 7, lines 45 to 58). Therefore this operation does not require different durations of light pulses for different scan velocities. D1 therefore does not go beyond a disclosure of pulse adjustments to provide colour balance. There is nothing in D1 suggesting that a variation of scan velocities, for example during ramp-up and ramp-down of the carriage or variations caused by varying friction resistance, or a variation from a first to a second scan velocity, could be compensated for by setting the durations of light pulses so that dark intervals would occur before substantially every pulse. The Board accepts the examining division's argument that a person skilled in the art would not provide unnecessary means for adjusting amplitude of signals. But this does not mean that it was obvious to adapt the known pulsing means in the manner specified in claim 1, so that additional means for amplitude compensation became unnecessary as set out in the description.

Thus the Board judges that the image-related device of claim 1 would not have been obvious to a person skilled in the art having regard to D1.

- 5.2 D2 discloses a document scanner comprising a lamp for illuminating a line-like area, imaging optics and a detector, such as a linear CCD (see column 3, line 52 to column 4, line 12). The scan carriage speed varies from zero at start-up to a maximum as the scan carriage accelerates at start-of-scan from rest up to the maximum scanning speed that the scanner is capable of (see Figure 8 and column 4, lines 40 to 58). Synchronisation between the CCD signals and the scan carriage movement is ensured by means of a carriage position sensor which tracks the movement of the carriage and in effect requests output of the next line of image signals (see column 6, lines 34 to 49) from the detector arrangement.

Pulsed illumination, dark intervals or control of colour balance are not disclosed in D2.

- 5.3 A person skilled in the art starting from D1 had no obvious reason to combine the different teaching of D2 with that of D1 because synchronisation between light pulses and the CCD sensor is provided for in D1 and the system already copes with different scan velocities. Furthermore, since there is no indication that the type of lamp used in D2 could be suitable for pulsed operation as in D1, nothing in D2 suggested illumination in synchronisation with the positional information relating to the position of the scan velocity selecting means or the setting of the duration

of light pulses and dark intervals as specified in claim 1.

5.4 Thus the Board judges that the image-related device of claim 1 was not obvious to a person skilled in the art having regard to D1 in conjunction with D2. The Board has examined of its own motion the other documents on file and has found nothing that would lead to a different conclusion. The Board therefore finds that the subject-matter of claim 1 shall be considered as involving an inventive step in accordance with Article 56 EPC.

6. In the judgment 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 in the following version:

Description:

pages 1 to 4, 10 to 28, 30 to 37 as originally filed
page 38 as filed with the letter of 6 August 2002
pages 5 to 9 and 29 filed in the fax dated 19 June 2006

Claims:

No. 1 to 11 filed in the fax dated 19 June 2006

Drawings:

Sheets 1/18 to 18/18 as originally filed

The Registrar:

The Chairman:

D. Sauter

F. Edlinger