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Datasheet for the decision of 13 February 2014

Case Number: T 1737/11 - 3.4.02

Application Number: 06026234.2

Publication Number: 1840506

IPC: G01C7/04, E01C19/00, E01C19/48, E01C23/01

Language of the proceedings: EN

Title of invention:
Virtual profilograph for road surface quality assessment

Applicant:
Topcon Positioning Systems, Inc.

Relevant legal provisions:
EPC 1973 Art. 54(1), 56

Keyword:
Novelty (main and first auxiliary requests: no)
Inventive step (second auxiliary request: no)

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Case Number: T 1737/11 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 13 February 2014

Appellant: (Applicant)	Topcon Positioning Systems, Inc. 7400 National Drive Livermore CA 94551 (US)
Representative:	Kuhnen & Wacker Patent- und Rechtsanwaltsbüro Prinz-Ludwig-Straße 40A 85354 Freising (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 11 March 2011 refusing European patent application No. 06026234.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. G. Klein
Members: F. J. Narganes-Quijano
L. Bühler

Summary of Facts and Submissions

I. The appellant (applicant) lodged an appeal against the decision of the examining division refusing European patent application No. 06026234.2 (publication No. 1840506).

In its decision the examining division held that the application documents amended according to the main and the first and second auxiliary requests then on file did not satisfy the requirements of the EPC.

Claim 1 of the main request reads as follows:

"A method for use with a first vehicle (202) adapted to move across a surface, said first vehicle (202) comprising a Global Navigation Satellite System (GNSS) antenna receiver (208), said method comprising:

calculating a plurality of locations of said GNSS antenna (208) at a corresponding plurality of different times;

storing said plurality of locations;

generating a representation of said surface based on said plurality of locations and said corresponding plurality of times; and

determining the ride quality of a second vehicle across said surface as a function of said representation."

The wording of claim 1 of the first auxiliary request differs in substance from that of claim 1 of the main request in that the expressions "a first vehicle" and "a second vehicle" are replaced by "a machine for road paving operations" and "a vehicle", respectively, and in that the claim further reads "and altering the

surface based on the determined ride quality and said representation to produce a desired ride quality."

The wording of claim 1 of the second auxiliary request differs in substance from that of claim 1 of the first auxiliary request in that the expression "a Global Navigation Satellite System (GNSS) antenna receiver" is replaced by "a first Global Navigation Satellite System (GNSS) antenna receiver and a second GNSS antenna receiver", the expression "of said GNSS antenna" is replaced by "of said first GNSS antenna and said second GNSS antenna", and the expression "generating a representation of said surface" is replaced by "generating a three axis representation of said surface".

II. With the statement setting out the grounds of appeal the appellant requested that the decision under appeal be set aside and a patent be granted on the basis of one of the main and the first and second auxiliary requests underlying the decision under appeal.

III. Oral proceedings were appointed by the Board. In a communication annexed to the summons to attend oral proceedings the Board referred to documents

D1: US-A-5471391

D4: "The little book of profiling - Basic information about measuring and interpreting rod profiles", M. W. Sayers et al.; The Regent of the University of Michigan (US), revised version dated 18 September 1998 pages 1 to 100

A1: KR-A-1020040108059 and English abstract published in "Korean patent Abstracts"

A2: JP-A-2003-239328 together with the WPI abstract and the English abstract published in "Patent Abstracts of Japan".

and gave a preliminary assessment of the appellant's case on appeal. In particular, as regards the issues of novelty and of inventive step of claim 1 of the main and the first and second auxiliary requests, the Board reasoned as follows:

"Main request

[...] The Board agrees with the appellant that the drive quality of a vehicle travelling across a roadway depends, among other factors, on the surface of the road (overall profile of the road surface, presence of bumps and dips, etc., see in this respect page 1, lines 15 to 17, and page 3, lines 1 and 2 of the description), and that the invention as disclosed in the application is primarily directed to the determination of the surface of the roadway for the purposes of assessing the drive quality of the vehicle travelling across the roadway. However, the question arises as to how the claimed feature "determining the drive quality of a vehicle" is to be construed in the context of the claimed subject-matter. In particular, it is not unambiguously clear in the claim whether the claimed feature in question is to be interpreted

a) as specifically requiring a determination process of the drive quality involving an evaluation algorithm or the like along the lines assumed by the examining division in its decision (see point 1.6 of the reasons for the decision) or as illustrated by the numerous examples shown in document D4, or

b) *b) as generally designating an assessment of the drive quality, for instance in the form of a qualitative evaluation of the same or in the form of the determination of any of the different parameters that may influence the drive quality such as the overall profile of the surface of the roadway.*

In addition, the description of the application merely refers

- *in general terms to the "assessment" of the quality of ride experienced by a vehicle over a road surface (page 1, first and third paragraphs, and page 10, first paragraph) which may be degraded due to the presence in the surface of fast elevation changes (page 2, lines 14 and 15, and page 3, lines 1 and 2), and*
- *more specifically, to the "measurement" of the ride quality of a roadway (page 4, second paragraph), but without specifying how the ride quality is to be measured.*

Therefore, the description does not appear to be helpful in clarifying the question raised above relating to the interpretation of the claimed feature "determining the ride quality". As a matter of fact, claim 1 and the remaining parts of the application do not even specify which specific aspect of the ride quality is considered in the invention.

In addition, due in part to the indefinite character of the claimed feature mentioned above, claim 1 of the main request does not appear to define patentable subject-matter for the following reasons:

Document D1 discloses a method for use with a vehicle, and in particular with an asphalt compactor or paving

machine (abstract together with column 1, lines 13 to 22, column 3, lines 36 to 38, and claim 10). The vehicle is adapted to move across a surface, and in particular across the surface of a road (column 3, lines 58 to 61), and comprises a GNSS antenna receiver, and in particular a GPS antenna coupled to the corresponding GPS equipment (column 6, lines 11 to 32 together with Figure 4 and the corresponding description). In addition, the document discloses the calculation and the storage of the successive positions of the GPS antenna at different times as the vehicle moves across the road surface, and the generation of a three-dimensional representation of the surface (column 2, lines 32 to 43, column 5, lines 24 to 49, and column 6, lines 33 to 43 together with figures 5 and 6 and the corresponding disclosure).

Claim 1 requires, in addition, "determining the ride quality of a second vehicle" across the surface as a function of the mentioned representation. In document D1 the three-dimensional representation of the surface represents the actual topography of the road surface (column 5, lines 42 to 49, column 10, lines 10 to 22, and column 11, lines 15 to 25) and this actual topography is compared with a reference (the "digital model of the desired degree of compaction" or "desired site model" or "compaction standard", see column 2, lines 24 to 31 and 43 to 46, column 6, lines 1 to 5 and 35 to 39, and column 17, lines 3 to 13) for the purposes of determining the elevation of the actual topography with respect to the reference (column 4, lines 41 to 45, paragraph bridging columns 16 and 17, and claim 18) and correcting the surface and bringing it in conformity with the reference (column 2, line 43 to column 3, line 16, column 4, lines 45 to 49, column

6, lines 1 to 11 and 44 to 55, column 10, lines 61 to 64, and column 15, lines 9 to 37).

In the preliminary opinion of the Board, as any deviation in elevation of the road surface from the reference would be detrimental to the drive quality, the determination of the deviations in elevation of the actual surface topography of the road with respect to a reference as disclosed in document D1 would qualify itself as an assessment of the drive quality with which a vehicle would move across the road surface corresponding to the overall profile of the roadway as determined by the actual surface topography. Therefore, the method disclosed in document D1 appears to provide intrinsically a determination of the ride quality of a vehicle across the road surface as a function of the topography of the surface at least within the general meaning of the claimed feature referred to in paragraph b) [...] above.

It is also noted in this respect that, as already mentioned [...] above, claim 1 and also the description of the application fail to specify any technical detail as to the determination of the drive quality of the vehicle as a function of the road surface (method of determination in qualitative or quantitative terms, vehicle model and dynamics, parameters to be taken into account, etc.), and that for this reason any attempt to construe the claimed subject-matter in a restrictive manner - for instance as mentioned in paragraph a) [...] above - would not appear to be supported by the disclosure of the invention and would therefore not be justified in the circumstances of the present case [...].

Having regard to the above, the subject-matter of claim 1 appears to be anticipated by the disclosure of document D1 (Article 54(1) and (2) EPC). [...]

First and second auxiliary requests

[Claim 1] as presently amended according to the first and the second auxiliary requests [does] not appear to define patentable subject-matter for the following reasons:

As already mentioned [...] above, in document D1 the machine in which the GNSS antenna receiver is mounted is a machine for road paving operations, and in particular an asphalt compactor or paving machine and, in addition, the document teaches altering the road surface as a function of the representation of the topography of the road surface and of the determination of the deviations in elevation of the actual surface topography of the road with respect to a reference. Therefore, independent [claim 1] of the first auxiliary request would not appear to define new subject-matter with regard to document D1 for reasons analogous to those given [...] above with regard to independent [claim 1] of the main request.

As regards independent [claim 1] of the second auxiliary request, the Board notes that the provision of a second GNSS or GPS antenna in a vehicle, and in particular in a paving machine, for improving the determination in three-dimensions of the position and orientation of the vehicle was already known at the priority date of the application in suit, see for instance document A1 (abstract and Figure 2) and document A2 (abstracts and Figures 1 and 4 to 7). For this reason, the subject-matter of [this claim] does

not appear to involve an inventive step (Article 56 EPC)."

IV. In reply to the summons to oral proceedings, the appellant informed the Board by fax dated 5 February 2014 that it would not attend the oral proceedings.

V. Oral proceedings were held before the Board on 13 February 2014. As previously announced, the appellant was neither present nor represented at the oral proceedings. At the end of the oral proceedings the Board announced its decision.

VI. During the written proceedings, no substantive submission was submitted by the appellant in response to the preliminary opinion of the Board given in the communication annexed to the summons to oral proceedings. The arguments in the statement of grounds of appeal in support of the appellant's requests predate, and have no bearing on the issues subsequently raised by the Board in the aforementioned communication.

Reasons for the Decision

1. The appeal is admissible.

2. In the communication annexed to the summons to oral proceedings the Board *inter alia* explained in detail (see point III above) why in its preliminary opinion the subject-matter of the claim requests on file was

not new or did not involve an inventive step (Articles 54(1) and 56 EPC 1973). In the course of the proceedings the appellant made no substantive submissions in reply to the detailed objections raised by the Board in the aforementioned communication. In particular, the appellant chose neither to attend the oral proceedings nor to take a written position on the matters raised by the Board. The appellant has therefore not availed itself of the opportunity to reply to the preliminary assessment of the case given by the Board in the aforementioned communication.

After consideration of the assessment advanced in the communication, and in the absence of any attempt by the appellant to refute or overcome the objections raised by the Board with regard to the claim request on file, the Board saw no reason during the oral proceedings to depart from the preliminary opinion expressed in the communication, which therefore becomes final.

Accordingly, noting that the appellant has had, and has failed to use, the opportunity to present comments on the objections raised by the Board in its communication (Article 113(1) EPC 1973), the Board concluded during the oral proceedings that the application as amended according to the appellant's request did not comply with the requirements of the EPC within the meaning of Article 97(2) EPC, and that consequently the request was not allowable. The appeal must therefore be dismissed for the reasons already communicated to the appellant and reproduced in point III above (Rule 66(2)(g) EPC 1973).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Kiehl A. G. Klein

Decision electronically authenticated