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File Number: W 33/91 - 3.4.2

Application No.: PCT/US90/07183

Publication No.:

Title of invention: Integrated Vehicle Positioning and Navigation System,
Apparatus and Method

Classification: G01C 21/00; G01S 5/14; G05D 1/02

D E C I S I O N
of 17 February 1992

Applicant: Caterpillar Inc.

Headword:

EPC PCT Article 17(3)(a), Rules 13.1 and 40

Keyword: "Refuse of refunding the additional fee"

Headnote



Case Number : W 33/91 - 3.4.2
International Application No. PCT/US90/07183

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 17 February 1992

Applicant : Caterpillar Inc.
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Representative : James R. Yee, Stephen L. Noe
and Robert E. Muir
Caterpillar Inc.
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Subject of the Decision : Protest according to Rule 40.2(c) of the Patent
Cooperation Treaty made by the applicants against
the invitation (payment of additional fee) of the
European Patent Office (branch at The Hague)
dated 3 June 1991.

Composition of the Board :

Chairman : E. Turrini
Members : R. Zottmann
C. Payraudeau

Summary of Facts and Submissions

I. The Applicant filed an international patent application PCT/US90/07183 with 300 claims.

II. The European Patent Office (EPO), acting as the competent International Search Authority (ISA), issued, pursuant to Article 17(3)(a) and Rule 40.1 PCT, an invitation to pay eight additional fees.

III. In the annexed statement specifying the reason for which the international application was not considered as complying with the requirement of unity of invention, the ISA stated that the application concerned the seven following inventions:

1. Claims 1-62, 66-69, 72, 76-89, 91-93, 99-150, 152-156, 295, 298-300: vehicle positioning and autonomous navigation system or method;
2. Claims 63-65, 70, 71, 73-75, 90, 94, 98: selection of a satellite;
3. Claims 95-97: method of improving the accuracy of position estimates of a vehicle;
4. Claims 151, 157-162, 169-206, 235-278, 296, 297: steering and obstacle avoidance;
5. Claims 163-168, 207-215: telecontrol of an autonomous vehicle;
6. Claims 216-231: control of vehicle using a road image;
7. Claims 232-234, 279-294: obstacle scanning

(clerical errors of claim numbering have been removed by the Board).

- IV. These inventions were considered by the ISA to relate to subject-matters which were so different from each other that no technical interaction could be appreciated to be present so as to form a single inventive concept a priori. In particular, the problem of selection of a satellite with which was concerned claim group 2 was not specific to the positioning system which was the subject-matter of claim group 1. It could appear in any positioning system and also in communication systems. Consequently, it did not form a common inventive object with subject no. 1. The ISA raised similar a priori objections as regards the claim groups 3 to 7.
- V. With respect to claim group 1, the ISA held that, in view of the prior document EP-A-181 012 (D1) which describes a vehicle navigation system provided with a first position locating device determining the position of the vehicle from speed and acceleration and a second device receiving position coordinates from a navigation satellite, a Kalman filter mixing the position coordinates from the first device with the position coordinates originating from the satellite and giving a position of the vehicle, there were no more general inventive concept between the independent claims of claim group 1.
- VI. Therefore, this claim group concerned three different inventions:
- 1a. Claims 1-42, 53-62, 84-88, 99-103: vehicle positioning system using terrestrial and vehicle mounted systems;

- 1b. Claims 43-52, 66-69, 72, 76-83, 89, 91-93, 104, 105, 152-156: satellite based vehicle positioning system; and
- 1c. Claims 106-150, 295, 298-300: autonomous navigation system.

VII. Within the prescribed time limit the Applicant paid the eight additional fees under protest requesting that the search be carried out for all inventions in the application. The Applicant agreed that the subject-matters contained in claim groups 3, 4, 5, 6 and 7 did contain separate inventive concepts. However, the alleged remaining claim groups (1a, 1b, 1c, 2, 4 and 7) contained less than the specified number of inventions. In support of his protest, the Applicant submitted that claim group 2 dealt with a method for selecting a satellite for the purpose of achieving an accurate estimate of a terrestrial position, that is, in fact, with a vehicle positioning system. Claim groups 1a, 1b and 1c also dealt with a vehicle positioning system. These groups could thus be combined in a single claim group under Rule 13.1 PCT.

Reasons for the Decision

- 1. The Applicant has paid the eight additional fees under protest but has at the same time recognised that there were no common inventive concept between the inventions of groups 3, 4, 5, 6 and 7. Moreover, although they state in the protest that the remaining claim groups 1a, 1b, 1c, 2, 4 and 7 do contain less than the specified number of inventions, the grounds given in support of the unity of invention are limited to claim groups 1a, 1b, 1c and 2. No reason whatsoever is given by the Applicant as concerns claim groups 4 and 7.

2. According to Rule 40.2(c) PCT, the Applicant may pay the additional fees under protest, "that is, accompanied by a reasoned statement to the effect that the international application complies with the requirement of unity of invention ...".
3. In the present case, a reasoned statement has only been submitted by the Applicant as concerned claim groups 1a, 1b, 1c and 2. Therefore, although the eight additional fees have all been paid under protest, the protest is only admissible as regards the additional fees concerning claim groups 1b, 1c and 2.
4. The ISA has considered that the subject-matters of claim groups 1 and 2 did not form a priori a common inventive concept.

Claim group 2 concerns a system for the selection of a satellite which, as rightly observed by the ISA is not specific to the vehicle positioning system which is the subject-matter of claim group 1 even if it is also intended to be used therewith. The Board is therefore of the opinion that the ISA was correct in finding that there is no common inventive concept between these two groups of inventions.

5. The ISA has, on the other hand, objected the lack of unity a posteriori between claim groups 1a, 1b, and 1c on the basis of document D1.
6. The common concept underlying the inventions of claim groups 1a, 1b and 1c according to the ISA is the realisation of a vehicle positioning and autonomous navigation system or method.

7. Such concept is already known from document D1 which (see there e.g. the abstract, pages 1, 2, 12, 13, 38-40 and Figures 2 and 13) describes

a system for estimating the terrestrial position of a vehicle and for navigating a vehicle comprising

- a first positioning system (satellite navigation system) providing first signals;
- means for receiving signals from said positioning system (a terrestrial position determination system);
- a second positioning system (vehicle mounted odometer and accelerometer) for providing second signals; and
- a processor for receiving and further treating said first and second signals and for determining an estimated position of said vehicle and thus of said receiving means.

8. Taking into account that this general concept is known, there is no more an inventive link between the invention of claim group 1a which concerns a system for estimating the position of a vehicle comprising two positioning systems, the invention of claim group 1b which concerns also a system for estimating the position of a vehicle but which comprises various means for processing the signals from a terrestrial position determining system (e.g. satellites) to determine the terrestrial position of a vehicle or alike and the invention of claim group 1c which relates to a system for autonomously navigating a vehicle along a predetermined path comprising means for causing said vehicle to detect obstacles.

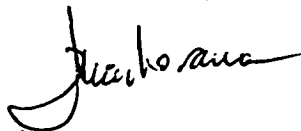
9. Accordingly, the ISA was correct in finding that there is no general inventive concept between the subject-matters of claim groups 1a, 1b and 1c since the only common concept which could link them was already known at the priority date of the present application.

Order

For these reasons, it is decided that:

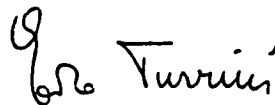
Refund of the additional fees is refused.

The Registrar:



P. Martorana

The Chairman:



E. Turrini

