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D E C I S I O N
of 21 September 1994

Case Number: T 0425/93 - 3.5.2

Application Number: 85307463.1

Publication Number: 0178924

IPC: B61L 25/04

Language of the proceedings: EN

Title of invention:
Electronic identification system

Applicant:
CANADIAN NATIONAL RAILWAY COMPANY (CANADIAN NATIONAL)

Opponent:
-

Headword:
-

Relevant legal norms:
EPC Art. 111(1), 123(2)

Keyword:
"Substantial amendment of claims - features taken into Claim 1 from the description - admissible under Article 123(2) EPC - yes"
"Remittal to first instance for further prosecution"

Decisions cited:
-

Catchword:
-

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Case Number: T 0425/93 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 21 September 1994

Appellant: CANADIAN NATIONAL RAILWAY COMPANY
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Decision under appeal: **Decision of the Examining Division of the European Patent Office dated 18 December 1992 refusing European patent application No. 85307463.1 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: R. E. Persson
Members: W. J. L. Wheeler
M. R. J. Villemin

Summary of Facts and Submissions

I. The Appellant contests the decision of the Examining Division to refuse application No. 85 307 463.1. The reason given for the refusal was that the subject-matter of the claims then on file did not involve an inventive step. The following prior art documents were considered by the Examining Division:

D1: DE-A-2 919 753
D2: US-A-4 303 904
D3: EP-A-0 111 591
D4: EP-A-0 111 753.

II. During oral proceedings held before the Board on 21 September 1994, the Appellant filed revised Claims 1 to 18. Claim 1 reads as follows:

"An electronic identification system for remotely programming and storing information on an object and remotely retrieving information from the object, including, in combination, an information and identity storage device (10) located on the object, and at least one interrogation station (11), one of said object and said station moving and the other of said object and station being fixed, said station being located relatively remotely from the object, for reading and programming the information and identity storage device (10) without physical contact when said one moves adjacent said other;

the information and identity storage device (10) comprising:

memory means (13) for storing information and identity data for later retrieval,

protect means for protecting a portion of the memory means against accidental erasure,

logic circuit means (13) for producing a predetermined coded signal representing the information and identity data stored in the memory means, the logic circuit means including means responsive to a control signal comprising a series of pulses from said interrogation station (11) for programming the portion of the memory means (13) not protected by the protect means based on the series of pulses comprising the control signal from the interrogation station (11),

transmitter means (16) including antenna means (17) for transmitting the coded signal,

trigger circuit means (14) which is triggered in response to receiving a burst of energy for, when triggered, causing the coded signal to be transmitted by the transmitter means,

the information and identity storage device (10) having a low power consuming quiescent mode and an active mode in which said transmitter means (16) is capable of transmitting the coded signal, said information and identity storage device (10) being responsive to triggering of said trigger circuit means to switch from the quiescent mode to the active mode, and

a battery power source (12) for the information and identity storage device (10),

the interrogation station (11) comprising:

interrogation signal means (22), including antenna means (19, 23), for triggering the trigger circuit means (14)

in the information and identity storage device (10) by providing a burst of energy,

pulse sequence generating means (22) for generating a said control signal comprising a series of pulses for programming the portion of the memory means (13) in the information and identity storage device (10) not protected by the protect means,

receiver means (18) for receiving the coded signal from the information and identity storage device,

decoder means (20) for decoding the coded signal for verifying the accuracy of the coded signal, and for recovering the information and identity data stored in the memory means (13) of the information and identity storage device (10),

the system further comprising:

synchronization means between the information and identity storage device (10) and the receiver means (18) for synchronising the signals transmitted therebetween, in which said synchronization means comprise one of (i) a first absolute time source within said information and identity storage device (10) and a second absolute time source (87) within said interrogation station, said first time source and said second time source being chosen to have substantially the same frequency and sufficient stability such that said first time source remains in synchronism with said second time source within a single bit for the duration of transmission of any said coded signal and any said control signal and (ii) a free running clock within said information and identity storage device (10), and means to code a clock signal from said free running clock in said coded signal."

Claims 2 to 18 are dependent on Claim 1.

III. The Appellant requested that the decision under appeal be set aside and that the case be remitted to the first instance for further prosecution on the basis of the new set of claims submitted during the oral proceedings.

IV. The Appellant argued that none of D1, D3 and D4 disclosed specific synchronization schemes. In the synchronization scheme disclosed in D2, the data signals had ramp slopes to allow recovery of the clock, reducing the amount of data which could be transmitted in any given time window.

Reasons for the Decision

1. The appeal is admissible.

2. In the opinion of the Board, the present claims do not contain anything extending beyond the content of the application as filed (see the original claims and the drawings and description from page 3, line 16, to page 13, line 11). Thus, the amendments made do not infringe Article 123(2) EPC.

3. Apart from several amendments to improve the clarity of the claim, the present Claim 1 now specifies two alternative "synchronization schemes" which have not been part of any of the claims considered by the Examining Division.

3.1 The Board agrees with the Appellant that the choice of synchronization means may affect the rate of data transmission in an electronic identification system, which could be critical when only a very short time

window is available for transmitting data between a fixed interrogation station and a (fast) moving information and identification storage device.

3.2 In the identification system shown in document D1, which the Examining Division took as the closest prior art in the decision under appeal, the problem of synchronization between the interrogation station 1 and the information and identity storage device 2 is not explicitly addressed. Though the system comprises, inter alia, a clock generator 28 to control and coordinate the operations of different circuits in the information and identity storage device 2, there is no disclosure in D1 of anything which could serve as synchronization means between the information and identity storage device 2 and the receiver means 12 of the interrogation station 1 for synchronising signals therebetween, as now specified in Claim 1 of the present application.

4. The Board finds that, in view of the substantial amendments made to the claims, the decision under appeal should be set aside and the application should be further examined. In particular, it is not clear whether a further search is necessary for the features of the alternative synchronization schemes which have been added to Claim 1.

4.1 However, as pointed out during the oral proceedings, the Board has noticed that document D2 discloses an electronic system for remotely programming and interrogating transponders mounted on vehicles, in which clock pulses (20, Figure 2) are inserted in the transmitted data stream for the purpose of synchronization. Thus, document D2 may now represent the closest prior art.

4.2 In particular, it is noted in passing that document D2 appears to disclose an electronic identification system for remotely programming and storing information on an object (vehicle) and remotely retrieving information from the object, comprising the following features recited in Claim 1:

"an information and identity storage device (vehicle transponder, shown in Figure 3) located on the object and an interrogation station (toll booth transponder shown in Figure 6), one of said object and said station moving and the other of said object and station being fixed (column 2, lines 25 to 26), said station being located relatively remotely from the object (Figure 1), for reading and programming the information and identity storage device without physical contact when said one moves adjacent said other (column 6, line 57 to column 7, line 5 and column 5, line 19 to 51)."

The information and identity storage device (vehicle transponder, Figure 3) comprises:

- memory means 54, 76 and 92 for storing information and identity data for later retrieval,

- protect means for protecting a portion of the memory means against accidental erasure (ROM, column 5, lines 34 to 37),

- logic circuit means for producing a predetermined coded signal representing the information and identity data stored in the memory means (column 5, lines 21 to 36), the logic circuit means including means 48, 68, 82, 110 responsive to control signals (codes #1, #2, #3, #4) comprising a series of pulses from said interrogation station for programming the portion of the memory means 92 not

protected by the protect means based on the series of pulses comprising the control signal from the interrogation station (column 5, lines 43 to 51 and column 7, lines 2 and 3),

- transmitter means 32 including antenna means 30 for transmitting the coded signal,

- trigger circuit means 32, 46 which is triggered in response to receiving a burst of energy (column 4, lines 62 to 68) for, when triggered, causing the coded signal to be transmitted by the transmitter means 32,

- the information and identity storage device having a low power consuming quiescent mode and an active mode in which said transmitter means 32 is capable of transmitting the coded signal, said information and identity storage device being responsive to triggering of said trigger circuit means to switch from the quiescent mode to the active mode (column 4, lines 62 to 68), and

- a battery power source 47 for the information and identity storage device.

The interrogation station (toll booth transponder, Figure 6) comprises:

- interrogation signal means 170, 180, including antenna means 160 for triggering the trigger circuit means in the information and identity storage device (Figure 3) by providing a burst of energy (column 4, lines 9 to 16 and lines 32 to 36),

- pulse sequence generating means 168, 180 for generating a said control signal comprising a series of pulses for programming the portion of the memory means 92 in the information and identity storage device 2 not protected by the protect means (column 5, lines 43 to 51),

- receiver means 166 for receiving the coded signal from the information and identity storage device,

- decoder means 174, 184 for decoding the coded signal for verifying the accuracy of the coded signal, and for recovering the information and identity data stored in the memory means 54, 76 and 92 of the information and identity storage device.

According to D2, the data modulation to be employed should include "quickly accessible clock information sent with the data". In the information and identity storage device, a clock 72 generates timing clock pulses that are inserted in the transmitted data stream (column 5, lines 27 to 29; column 4, lines 15 to 21 and Figure 2).

5. It is considered appropriate in the present circumstances to exercise the Board's discretion under Article 111(1) EPC to remit the case to the first instance for further prosecution.

5.1 For avoidance of doubt, it is pointed out that the first instance is bound by this decision only as far as the allowability of the amendments under Article 123 (2) EPC is concerned. The first instance is free to require further amendments, if it considers them necessary.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution on the basis of Claims 1 to 18 submitted during the oral proceedings.

The Registrar: The Chairman:

M. Kiehl E. Persson

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