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D E C I S I O N
of 10 July 2003

Case Number: T 0111/99 - 3.4.1

Application Number: 90913745.7

Publication Number: 0491790

IPC: H05B 37/02

Language of the proceedings: EN

Title of invention:
Field lighting installation

Patentee:
Airport Technology in Scandinavia AB

Opponent:
Siemens AG

Headword:
-

Relevant legal provisions:
EPC Art. 100(a), 56

Keyword:
"EPC Article 100(a) Opposition ground - lack of inventive step (no)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0111/99 **-** 3.4.1

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 10 July 2003

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Representative: -

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 8 December 1998 rejecting the opposition filed against European patent No. 0491790 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: G. Davies
Members: G. Assi
H. K. Wolfrum

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal, received on 25 January 1999, against the decision of the opposition division, dispatched on 8 December 1998, rejecting the opposition against the European patent No. 0 491 790. The fee for appeal was paid on 25 January 1999. The statement setting out the grounds of appeal was received on 11 March 1999.

II. Opposition had been filed against the patent as a whole and was based on Article 100(a) EPC, on the ground that the claimed subject-matter did not involve an inventive step (Article 56 EPC).

In the decision under appeal, the opposition division held that the ground for opposition did not prejudice the maintenance of the patent unamended, having regard *inter alia* to the following documents:

(E3) DE-A-3 635 682,

(E4) GB-A-1 424 802,

(E6) EP-A-0 301 528,

(E7) US-A-3 778 699.

With regard to a further document, referred to as E8, concerning a "*demo system for monitoring of airfield lighting for Spain*", filed by the appellant with a letter dated 20 August 1998 as an alleged annex to document E6, the opposition division held that this document did not belong to the state of the art within

the meaning of Article 54(2) EPC because the publication date could not be established.

III. With a letter dated 25 March 2003, the parties were summoned to oral proceedings scheduled to take place on 10 July 2003. By letters dated 8 May 2003 and 9 July 2003, respectively, both the respondent (patent proprietor) and the appellant (opponent) informed the Board that they would not attend the oral proceedings. By a notification dated 9 July 2003, the oral proceedings were cancelled.

IV. The appellant requested the revocation of the patent. Moreover, the appellant, having alleged that the opposition division had committed a substantial procedural violation in disregarding document E8, requested further prosecution of the opposition or, as an auxiliary request, a decision on the appeal, taking into consideration document E8 (see the statement setting out the grounds of appeal: "*Es wird beantragt zu entscheiden, die Prüfung des Einspruchs unter Berücksichtigung von E8 wieder aufzunehmen. ... Hilfsweise wird beantragt, daß die Beschwerdeabteilung unter Einbeziehung von E8 über die Beschwerde befindet.*").

V. The respondent requested the dismissal of the appeal.

VI. Claim 1 of the patent as granted reads as follows:

"Field lighting installation, including a plurality of series connected light fittings supplied from an A.C. mains via a converter unit (LN,C,L2), said converter unit (LN,C,L2) being adapted to convert the

substantially constant voltage obtained from the mains to substantially constant current in departing current lines of a power cable (4) containing the light fitting, each light fitting being adapted to include a lamp (6), a regulator unit (12) supplied with said constant current on the power cable (4) being associated with each light fitting or group of light fitting for individual regulation of the current passing through the associated lamp or lamps (6), ***characterised in*** *that each regulator unit (12) is disposed to receive control information via the power cable (4) and in that the converter unit (LN,C,L2) includes a Boucherot circuit having a series resonance circuit (LNC), substantially tuned on the mains frequency, and an additional inductance (L2) in series with a load (Zbel) connected to the converter unit.*"

Claims 2 to 9 are dependent on claim 1.

VII. The appellant essentially argued as follows:

The opposition division committed a substantial procedural violation in considering that document E8 did not belong to the state of the art within the meaning of Article 54(2) EPC. Since E8 was an annex to E6, it enjoyed the same publication date as E6. Evidence thereof consisted in the fact that a copy of document E6, received from the EPO, had document E8 attached thereto.

With regard to the issue of inventive step, the use of a Boucherot circuit as a current supply system in a field lighting installation with the aim of reducing costs was obvious to the skilled person. Modified

Boucherot circuits were known, the modification depending on the application (see, for instance, E7). In particular, the claimed provision of an additional inductance was an obvious adaptation of the current source to the special requirements of field lighting installations. The further claimed feature concerning the use of the power cable for the transmission of control information to the lamps represented an aim rather than a concrete technical solution and could not support the presence of an inventive step in view of the disclosure of E6 (or E3). Finally, the current supply system and the transmission of control information should be regarded as an aggregation of functionally independent features.

VIII. The respondent essentially argued as follows:

Document E8 neither bore a publication date nor were its origin and author(s) known. Furthermore, the appellant did not produce any evidence supporting the allegation that E8 was an annex to document E6. The opposition division thus acted correctly in disregarding E8.

The subject-matter of claim 1 involved an inventive step. The skilled person would have to combine the teachings of several documents, ie that of E4, representing the closest prior art, with those of E7 and E6 (or E3). Even such a combination, however, would not lead to the claimed installation. Indeed, according to the invention, regulating information had to be transmitted to the lamps, whereas E6 taught to send uncritical signals representing the state of the lamps to a central unit. Moreover, the claimed feature

concerning the additional inductance was not disclosed by any of the documents.

Reasons for the decision

1. The appeal is admissible.

2. *Alleged procedural violation*

2.1 When filing documents E6 and E7 during the opposition procedure, the appellant referred to an example allegedly annexed to document E6 (see in the letter of 20 August 1998, page 2, last paragraph, the sentence "*Eine Lampenkontrolle entsprechend der vorgeblichen Erfindung ergibt sich sinngemäß auch aus dem der EP 0 301 528 A1 beigefügten Ausführungsbeispiel, ...*" (underline added)).

The opposition division introduced both documents E6 and E7 into the procedure in view of their relevance (see the minutes of the oral proceedings on 13 October 1998, point 4.c). However, the opposition division held that document E8 could not be regarded as belonging to the state of the art within the meaning of Article 54(2) EPC, because this document did not bear any publication date and no evidence had been produced by the appellant supporting a link between E8 and E6 (see the decision under appeal, points 4.a and 4.b of the reasons).

2.2 In order to investigate the appellant's assertions concerning document E8, the Board ordered a copy of E6 from the EPO. No annex was attached to it. The Board

also made a file inspection with regard to the application E6. The file does not include the document E8.

In an official communication annexed to the summons to attend oral proceedings, the Board informed the parties of the results of its investigations. The appellant did not comment further.

2.3 According to established case law of the boards of appeal, if a fact is not proven, this goes to the detriment of the party needing to prove it, *ie* the party relying on this fact (see "*Case Law of the Boards of Appeal of the EPO*", 4th Edition, Section VI.J.6.1).

In the present case, the Board's investigations did not reveal any element which could confirm the appellant's assertion that document E8 was annexed to document E6. Moreover, the appellant provided no evidence in this respect nor contested the results of the Board's investigations. Document E8 itself bears neither a date nor any indication as to its origin.

The Board, therefore, concludes that document E8 cannot be regarded as belonging to the state of the art within the meaning of Article 54(2) EPC. The opposition division, in drawing the same conclusion, committed no procedural violation.

2.4 Since document E8 has to be disregarded, the appellant's requests for further prosecution of the opposition proceedings or a decision of the appeal taking into consideration document E8 cannot be granted.

3. *Inventive step*

3.1 In the decision under appeal (see the reasons, point 3b), the opposition division considers document E4 to represent the closest state of the art disclosing the preamble of claim 1. It then considers, in particular, the combination of E4 with E7 and E6 (or E3) (see the reasons, points 3a and 3g).

3.2 In the statement of grounds of appeal, the appellant, apart from the issue concerning the alleged procedural violation, only makes a cursory reference to document E7 and undefined standard physics books. However, it appears from the opposition file that, in the appellant's view, the features distinguishing the subject-matter of claim 1 from the field lighting installation of document E4 would be obvious in the light of the knowledge of the skilled person, evidence for which was given by documents E6 and E7 (see the letter of 20 August 1998, page 1, the expression "*Belege für das allgemeine Fachwissen*" referring to E6 and E7). In particular, the feature concerning the transmission of control signals via the power cable was suggested by document E6 and those regarding the modified Boucherot circuit with the additional inductance would be obvious from the disclosure of document E7.

3.3 The Board has no reason to depart from the undisputed view that document E4 represents the closest state of the art.

Document E4 (see page 1, line 85, to page 2, line 5; Figure 1) discloses an airfield lighting installation

including a plurality of series connected lamp control units supplied from an A.C. mains via a converter unit. Although the converter unit is not shown in Figure 1, it is supposed to supply the lamp control units with constant current through a power cable (see the line connecting the primary windings of the transformers). Each lamp control unit includes a light fitting with a lamp connected in parallel with a switch in the form of a triac for regulation of the current passing through the lamp. The triacs receive control information via cables which are separate from the said power cable (see page 2, lines 5 to 48). Hence, E4 discloses a field lighting installation including the features of the preamble of claim 1.

3.4 The subject-matter of claim 1 differs from the field lighting installation according to E4 in that:

– each regulator unit receives control information via the power cable, and

– the converter unit includes a Boucherot circuit having a series resonance circuit tuned on the mains frequency and an additional inductance in series with the load connected to the converter unit.

3.5 The transmission of control information via the power cable reduces cable costs because separate control cables for each lamp become superfluous and their embedding can be avoided (see the object of the invention as defined in the patent in suit, column 1, lines 44 to 48; it is noted that an individual lamp control is already achieved by the installation known

from D4). On the other hand, the solution of transferring control signals via the power cable, *ie* superimposed on an A.C. supply voltage, is critical because it entails the risk of saturation, noise and distortion of the superimposed signals (see the respondent's letters of 17 September 1999, point 3.3, and of 7 November 1996, page 2, fourth full paragraph, as well as the appellant's letter of 29 July 1997, page 2, second paragraph).

A Boucherot circuit is a series resonance LC circuit tuned to the mains frequency. It supplies a constant current to the lamps despite sudden variations of the load (see column 2, lines 24 to 34, and column 4, lines 5 to 19 of the patent specification). Boucherot circuits are less expensive than other relatively complex constant current regulators with, for example, thyristor control (see the respondent's letter of 7 November 1996, page 2, third full paragraph). Moreover, the claimed Boucherot circuit is modified in that it includes an additional inductance in series with the load. As it appears from column 2, lines 43 to 49, and column 4, lines 30 to 55, of the patent specification, the additional inductance serves *inter alia* for providing an undistorted sinusoidal wave with regard to the A.C. supply voltage, the inductances and capacitance of the circuit filtering away the overtones of the sinusoidal wave.

Hence, the characterising features of claim 1 are functionally related in that the provision of the specifically modified Boucherot circuit enhances the reliability of signal transmission via the power cable.

3.6 The Board does not concur with the appellant that the idea of transmitting control information via the power cable to the regulator units was rendered obvious by document E6.

Document E6 describes a system which monitors an airport lighting installation (see column 1, lines 1 to 8). Figure 2 shows a plurality of series connected light fittings on a power cable supplied from an A.C. mains via a converter unit converting the voltage obtained from the mains to constant current. Each light fitting includes a lamp and a detector connected through the power cable to a control unit. Each detector transmits via the power cable a signal indicating that the corresponding lamp is operational. Should a lamp fail, the associated detector inhibits the transmission of the signal via the power cable. The control unit then detects that a signal is missing and works out which lamp failed.

A similar installation is known from document E3. Status signals indicative of the function and the position of a lamp are transmitted via the power cable to a central unit (see column 2, lines 35 to 43, and column 3, line 61, to column 4, line 55).

Thus, documents E3 and E6 both teach transferring status signals from series connected lamps to a central unit, but remain silent on any transfer of control information in the opposite direction. No other prior art document cited by the appellant discloses the feature of transferring control information via the power cable to the lamp regulator units of a lighting installation. In this respect, it is noted that the

requirements on status signals and control signals are quite different. In particular, the accuracy requirements for control signals used for regulating the current passing through each lamp or group of lamps are far more stringent than those for rather uncritical status signals. Interferences of control signals with the current supply in the power cable may, in fact, cause undesired variations in the brightness of the lamps or even an inadvertent switching off, these risks being clearly inadmissible for an airfield lighting installation.

For this reason, neither document E6 nor E3 incites the skilled person to change the way in which the current through the lamps of document E4 is regulated, *ie* via individual control lines.

3.7 Moreover, the Board does not share the appellant's view that the choice of the claimed modified Boucherot circuit for the converter unit of a field lighting installation was just an arbitrary selection among known alternatives and would have been rendered obvious by the teaching of document E7.

E7 relates to resonant type current regulators capable of regulating the current flowing through switchable loads such as light beacon devices. The teaching of E7 starts from the recognition that resonant type regulators comprising a resonant circuit connected across a load impedance are capable of providing a current which is independent of the load (see column 1, lines 4 to 19) but, nevertheless, may not be sufficiently stable (see column 1, lines 28 to 52). The document thus discloses different examples of resonant

type current regulators (see Figures 1 to 4) including a controlled inductive impedance means whose impedance value is varied in response to a signal indicative of the deviation of the load current from a predetermined reference value (see column 1, lines 57 to 62).

It appears that Boucherot circuits belong to the group of resonant type current regulators referred to in document E7. Therefore, the choice of a Boucherot circuit as such for the converter unit in the installation of document E4 would be an obvious measure. This, however, does not hold true for the claimed modification because the circuits taught by E7 are substantially different and serve a different purpose. In the Board's view, the choice of a Boucherot circuit, further improved by an additional inductance in series with the load, constitutes a purposive selection so as to provide a prerequisite for a reliable transfer of control information via the power cable, which is not taught by the prior art.

3.8 For the foregoing reasons, the combination of the teachings of documents E4, E6 (or E3) and E7 would not lead the skilled person to the subject-matter of claim 1 under consideration. No other combination of prior art documents considered in examination and opposition would lead to another conclusion.

4. In conclusion, the ground for opposition mentioned does not prejudice the maintenance of the patent unamended.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Dainese G. Davies