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Datasheet for the decision of 7 November 2006

Case Number: T 0146/05 - 3.4.03

Application Number: 97900125.2

Publication Number: 0817542

IPC: H05B 41/288

Language of the proceedings: EN

Title of invention:
Discharge lamp lighting device

Patentee:
USHIO DENKI KABUSHIKI KAISHA

Opponent:
OSRAM GmbH

Headword:
Fly-back circuit/USHIO

Relevant legal provisions:
EPC Art. 100(c), 111(1)
EPC R. 29(7)

Keyword:
"Added subject-matter (no)"
"Remittal to the opposition division"

Decisions cited:
T 0190/99

Catchword:
-

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Case Number: T 0146/05 **-** 3.4.03

D E C I S I O N
of the Technical Board of Appeal 3.4.03
of 7 November 2006

Appellant: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 19 November 2004 revoking European patent No. 0817542 pursuant to Article 102(1) EPC.

Composition of the Board:

Chair: V. L. P. Frank
Members: G. Eliasson
T. Bokor

Summary of Facts and Submissions

I. This appeal is against the decision of the opposition division revoking European patent 0 817 542 on the ground of added subject matter (Article 100(c) EPC). The other grounds of opposition raised by the opponent were not discussed in the decision under appeal.

II. Claim 1 as granted reads as follows:

"1. Device for operating a fluorescent discharge lamp for document scanning illumination of an information processing device and for a background light device of a liquid crystal display, in which within a glass tube (3) at least one of the rare gases He, Ne, Ar, Kr, or Xe is hermetically sealed in a stipulated amount, in which fluorescent material is applied to the inside of the glass tube (3), and in which in the axial direction on the outside of the glass tube (3) there are at least two strip—shaped electrodes (2) over the entire length of the glass tube (3), and with a lamp voltage with a cyclic voltage waveform, controlled by a driver circuit (7), characterized in that

- the driver circuit (7) is of the fly—back type,
- in the cyclic voltage waveform the zero—level width W_0 of the waveform having the maximum peak voltage in one period is set to $2\ W_0 < t$ with respect to the cycle period t, whereby a half—value width W is set to a predetermined value of a waveform in the range of $10\ \mu s \leq t \leq 30\ \mu s$,

– all electrodes (2) are arranged on the outside of the glass tube (3) and there are no inner electrodes (Fig. 1)."

III. The reasons given in the decision under appeal can be summarized as follows:

The feature "the driver circuit (7) is of the fly-back type" in claim 1 as granted was not disclosed in the application as filed. According to the description, "driver circuit" was a sub-circuit designated by reference "7" of the fly-back circuits shown in figures 1, 2 and 4. This sub-circuit produced signals turning the switching device 8 on and off at a predetermined frequency. Therefore, the "driver circuit" appearing in claim 1 could not be equated to the fly-back circuit of Figures 1, 2 and 4 or to any other "circuit of the fly-back type". Furthermore, it was not disclosed that the "driver circuit" controlled the lamp voltage.

IV. In a communication accompanying a summons to oral proceedings, the board introduced the following excerpt from a text-book in electronics:

D5: P. Horowitz and W. Hill "The art of electronics" (Cambridge University Press, Cambridge 1980), pages 213 to 215.

V. At the oral proceedings before the board, the parties made the following requests:

The appellant proprietor requested that the decision under appeal be set aside and the patent be maintained on the basis of one of the following requests:

Main request:

The patent as granted with the correction of the erroneous reference sign "7" in claim 1;

Auxiliary request 1

Claim 1 according to the first auxiliary request filed with the statement of the grounds of appeal, Claims 2 to 4 as granted;

Second auxiliary request:

Claim 1 according to the second auxiliary request filed with the statement of the grounds of appeal, Claims 2 to 4 as granted.

The respondent opponent requested that the appeal be dismissed.

VI. The arguments of the appellant proprietor can be summarized as follows:

(a) The patent solved the problem of improving the operation of a fluorescent discharge lamp by using a fly-back circuit which produced cyclic high-voltage pulses (see application as published, page 3, lines 21 to 56). Thus, the "driver circuit of the fly-back type" in claim 1 could only be interpreted to mean the high-voltage fly-back circuit depicted in Figures 1, 2 and 4. The interpretation of claim 1 made by the opposition division made no technical sense.

(b) From the above, it followed that the reference sign "7" in claim 1 was an obvious error, as "driver circuit" in claim 1 clearly did not equate with the pulse generating circuit "7" shown in Figures 1, 2 and 4.

VII. The arguments of the respondent opponent can be summarized as follows:

(a) By introducing the feature "the driver circuit is of the fly-back type" in claim 1 during the examination procedure, the appellant proprietor introduced a discrepancy between the claim and the description, since the term "driver circuit" was already used for a circuit denoted "7" which was not disclosed as being a fly-back circuit. Furthermore, claim 1 specified that the lamp voltage was "controlled" by the "driver circuit of the fly-back type", whereas the description stated that the lamp voltage was "produced by a circuit of fly-back type" (application as published, page 3, line 56).

(b) Contrary to the arguments of the proprietor, the skilled person would interpret "driver circuit" in claim 1 to mean the driver circuit 7 in Figures 1, 2 and 4. Claim 1 specified that the driver circuit *controlled* the lamp voltage, which meant that the driver circuit did not have to *produce* the voltage. Furthermore, as shown on page 213 in document D5, it was known in the art to use fly-back circuits not only in high-voltage but also in low-voltage applications. Therefore, it was technically

possible to use a fly-back circuit in a circuit for generating pulses.

Reasons for the Decision

1. The appeal is admissible.

2. *Added subject matter*

2.1 Claim 1 as granted specifies the claimed device to be "with a lamp voltage with a cyclic voltage waveform, controlled by a driver circuit", where "the driver circuit is of the fly-back type". The point at issue is whether the specification of the "driver circuit" to be "of the fly-back type" introduces subject matter beyond that of the application as filed.

The issue arises because the term "driver circuit" in claim 1 was unfortunately already used in the description but for a sub-circuit of a fly-back circuit. The question is thus whether the skilled person when construing claim 1 would recognise directly and unambiguously that "driver circuit" in claim 1 corresponds to the entire fly-back circuit depicted in Figures 1, 2 and 4 and not to the sub-circuit denoted "7".

2.2 The patent relates to a device for operating a fluorescent discharge lamp of the outer electrode type, ie a discharge lamp in form of a sealed glass tube with the electrodes arranged on the outside of the glass tube (patent specification, paragraphs 0003, 0004 and 0015). The lamp is powered with a cyclic high voltage

(on the order of 1000 V) (paragraph 0046). The lamp voltage is provided by a circuit of the fly-back type (paragraphs 0023, 0034, 0037; Figures 1, 2 and 4). The specification refers to a "driver circuit" labelled with reference "7" in Figures 1, 2 and 4, which provides a switching device 8 with driver signals in form of pulses turning the switching device 8 on and off (patent specification, paragraphs 0023 and 0025; application as published, page 4, lines 51 to 58, page 5, lines 6 to 8; Figures 1 and 4). In the following the "driver circuit 7" as shown in Figures 1, 2, and 4 will be referred to as "pulse oscillator circuit".

2.3 In the decision under appeal, the opposition division found that the term "driver circuit (7)" in claim 1 as granted should be construed to correspond to the pulse oscillator circuit "7" in the circuits of Figures 1, 2, and 4, since this pulse oscillator circuit was consistently labelled "driver circuit (7)" in the description (see item III above).

2.4 The board cannot agree with this finding of the opposition division. It is the established jurisprudence of the boards of appeal that a claim should be interpreted in a manner which makes technical sense and takes into account the whole disclosure of the patent. In particular, the skilled person, when considering a claim, should rule out semantically based interpretations which are illogical or do not make technical sense (see T 190/99, reasons 2.4; see also Guidelines C-III, 4.2). These principles are particularly important in post-grant procedures where a claim might be less than completely clear or in some

degree of conflict with the description, making the construction of the claim difficult.

2.5 In the present case, claim 1 specifies that the "driver circuit" is of the fly-back type and controls the lamp voltage. Since the claimed device has to be suitable for operating a discharge lamp having outer electrodes, the skilled person knows that the required lamp voltage has to have peak values in the range of 1000 V. It is furthermore known that fly-back circuits are commonly used for generating voltages having peak values of thousands of volts (see for example document D5 being an excerpt from a text-book on electronics).

2.6 In the light of the above considerations, the skilled person when construing claim 1 on the basis of the disclosed embodiments of the patent finds that the "driver circuit" of claim 1 can only correspond to the entire circuits of Figures 1, 2 and 4 as they are fly-back circuits. These circuits are labelled "basic circuit" (Figure 1), "circuit" (Figure 2), and "experimental circuit" (Figure 4) (see paragraphs 0023, 0034, and 0037 reproducing the passages on page 4, lines 51 to 58, page 5, line 58 to page 6, line 5, page 6, lines 12 to 36 of the application as published). The term "driver circuit" used in claim 1 is as broad and vague as the terms "circuit", "basic circuit" and "experimental circuit" so that the skilled person in his pursuit of construing claim 1 would not be able to attribute any other meaning to these terms than that they refer to circuits.

2.7 Although the pulse oscillator circuit "7" in Figures 1, 2, 4 is called "driver circuit", the skilled person

would not consider equating the "driver circuit" of claim 1 with this circuit, since, apart from the fact that there is nothing in the description suggesting that the oscillator circuit "7" could be a fly-back circuit, it makes no sense to use a fly-back circuit for performing the function of the oscillator circuit "7" in Figures 1, 2, and 4.

Admittedly, fly-back circuits can be used in low-voltage applications as well (see item VII(b) above and D5, sections "Step-up regulator" and "Micropower regulators"). The purpose of using a fly-back circuit, be it in low- or high-voltage applications, is to generate voltages higher than the DC supply voltage. In the fly-back circuits of Figures 1, 2, and 4, the output "driver voltage" of the pulse oscillator circuit 7 is connected to the base (gate) of the transistor 8. In these circuits it would make no sense to produce a base (gate) voltage which is higher than the supply voltage "DC Source" 6. Indeed, it is shown in the fly-back circuit of Figure 4 that the supply voltage is 24V, whereas the peak voltage of the "driver signals" from the pulse oscillator circuit 7 fed to the gate of the FET 8 is 12V.

2.8 The term "driver circuit" was erroneously accompanied by the reference sign "7" in claim 1. According to Rule 29(7) EPC, however, reference signs are not to be construed as limiting the claim. Therefore, a reference sign cannot impose a particular interpretation on a claim.

2.9 As indicated above, the passages of the patent specification referred to above reproduce the

corresponding passages in the application as filed. Therefore, in the board's judgement, the ground of opposition under Article 100(c) EPC does not prejudice maintenance of the patent, since claim 1 according to the main request does not introduce any subject matter extending beyond that of the application as filed.

3. As the decision under appeal did not deal with the other grounds of opposition, the board, after consulting the parties, finds it appropriate to remit the case to the opposition division for further prosecution on the basis of the main request (Article 111(1) 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 for further prosecution.

Registrar Chair

S. Sánchez Chiquero V. L. P. Frank