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D E C I S I O N
of 23 September 1998

Case Number: T 0874/94 - 3.4.2

Application Number: 90201208.7

Publication Number: 0398432

IPC: H05B 41/29

Language of the proceedings: EN

Title of invention:
Switching arrangement

Applicant:
Koninklijke Philips Electronics N.V.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 54, 84

Keyword:
"Novelty (main request: no; second auxiliary request: yes)"
"Clarity (main and first auxiliary request: no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0874/94 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 23 September 1998

Appellant: Koninklijke Philips Electronics N.V.
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Representative: Dusseldorp, Jan Charles
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 11 July 1994 refusing European patent application No. 90 201 208.7 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: E. Turrini
Members: R. Zottmann
V. Di Cerbo

Summary of Facts and Submissions

I. The Appellant (Applicant) lodged an appeal against the decision of the Examining Division to refuse the European patent application No. 90 201 208.7 with the publication No. 0 398 432.

II. The reason given for said decision was that claim 1 lacked novelty with regard to document

(A): US-A-4 649 321.

The diverging opinions of the Examining Division and the Appellant (Applicant) concerning novelty of claim 1 vis-à-vis the prior art disclosed in (A) resulted mainly from the different interpretation of the expression "current source".

III. In the grounds of appeal, the Appellant submitted revised claims, as a (first) auxiliary request while maintaining the claims on which the attacked decision was based (now main request). He referred to the following handbooks already cited and/or filed during the examining proceedings:

(c): Electronic Designers' Handbook, MacGraw-Hill, 1957, page 23.9 paragraph 23.3 text and accompanying Figure 23.8,

(d): Guidebook of Electronic Circuits, MacGraw-Hill, 1974, pages 196 to 198, 452, 460 and 461, and

(e): Electronics Engineer's Reference Book, London 4th ed., 1976, pages 13-10 and 13-11.

Furthermore, the Appellant suggested alternatively to replace the expression "current source" by "current generator".

IV. In a communication pursuant to Article 110(2) EPC, the Board of Appeal expressed its preliminary opinion that claim 1 of the main and (first) auxiliary request including the suggested alternatives (see last sentence of section III. above) were not allowable thereby referring to the handbooks

(a) "Brockhaus, Naturwissenschaften und Technik", Wiesbaden, 1983, volume 5, keyword "Stromquelle", and

(b) Lexikon Elektronik, first ed., Weinheim, 1978, keyword "Stromquelle".

To meet these objections, with letter dated 20 May 1998 the Appellant filed, as a second auxiliary request, revised claims and stated that, if the Board was intending to decide on the second auxiliary request, and therefore to cancel the attacked decision and to remit the case to the first instance for further prosecution, he would withdraw the earlier request for oral proceedings.

VI. Claim 1 of the **main request** reads as follows:

"1. A switching arrangement suitable for ignition and operation of a high-pressure discharge lamp (V) with a pulsatory current of changing polarity provided with

- a bridge network (II) including first and second switching means (21, 22) which are switched alternately to each other to a conducting and a non-conducting state for obtaining the pulsatory current of changing polarity,

- a driving circuit (25) for driving the first switching means (21), which includes a shortcircuit switch (27) between a control electrode (215) and a main electrode (211) of the first switching means (21), which shortcircuit switch maintains for the time in which the first switching means is switched to the non-conducting state a shortcircuit between the control electrode (215) and the main electrode (211), and

- a control circuit (IV) for supplying a control signal to the driving circuit,

characterized in that the driving circuit (25) comprises a controlled current source (28) for controlling the shortcircuit switch."

Claims 2 and 3 are dependent on claim 1.

Claim 1 of the **first auxiliary request** reads as follows:

"1. A switching arrangement suitable for ignition and operation of a high-pressure discharge lamp with a pulsatory current of changing polarity provided with

- a bridge network including first and second switching means each switched alternately to a conducting and a non-conducting state for obtaining the pulsatory current of changing polarity, and the first and second switching means being only simultaneously in the non-conduction state,

- a driving circuit for driving the switching means, which includes a shortcircuit switch between a control electrode and a main electrode of the first switching means forming a connection of the drive circuit with the bridge network, which shortcircuit switch maintains for the time in which the first switching means is switched to the non-conducting state a shortcircuit between the control electrode and the main electrode, and

- a control circuit for supplying a control signal to the driving circuit,

characterized in that the driving circuit comprises a controlled current source for controlling the shortcircuit switch and that the drive circuit and its connection to bridge network is free of a dc-separation."

Claim 2 is dependent on claim 1.

The two claims of the **second auxiliary request** differ from the claims of the first auxiliary request only in that the expression "controlled current source" (of the characterizing part) of claim 1 is replaced by "controlled constant current source". Claim 2 is dependent on claim 1.

VII. The arguments of the Appellant are summarized as follows:

The conclusion of the Examining Division in the decision under appeal (taken in II.1.e) that, without any further restriction, the term "current source" as used in claim 1 also covers all the sources which supply current to any load, is unjustified and implies inevitably identity between the terms "current source" and "power source". This is contradictory to documents (c) and (d). Even if the term "current source" or "current generator" might at first glance give room for such an opinion, it would be self-evident for the skilled person that the teaching of the application as filed, in particular when considering the description, can only concern a source with a very high internal impedance.

Reasons for the Decision

1. The appeal is admissible.

2. The interpretation of the expressions "(controlled) current source" and, respectively, "(controlled) current generator", the latter having been suggested as an alternative from the Appellant himself (see settlement of the grounds of appeal), is the point at issue of this case.

The citations (c) to (e) of the Appellant do not unambiguously indicate that a current source or a controlled current source is a **constant** current source. They characterize the circuits as "ideal current generator" (document (c)), a "constant(-)current generator" (document (d)), a "current source" (document (d)), a "constant-current supply" (document (d)) or

"constant-current source" (document (d)), but do not unambiguously define **vice versa** that a (controlled) current source or generator provides to a large extent a constant current or has a very high internal impedance.

The handbooks (a) (the keyword "Stromquelle" has to be translated as "current source") indicates that a current source is every device providing an electric voltage which can be loaded, e.g. a generator, a galvanic element, photocell, storage battery. According to (b) a current source is 1) much the same as a constant current source ("Konstantstromquelle") and 2) much the same as a distribution unit ("Versorgungseinheit").

As a consequence, a "current source" is not restricted to a current source with a largely constant current or, correspondingly, with a high internal impedance, but at least comprises also the general notion of a source which supplies current to a load. According to the handbooks (a) through (e), the meaning of said expression is thus ambiguous and at least comprises the interpretation of the Examining Division (see section VII. above first sentence).

Corresponding considerations apply to the expression "(controlled) current generator".

The argument of the Appellant that the interpretation of the expression "current source" by the Examining Division implies inevitably identity between the terms "current source" and "power source" is not correct and even if it were correct cannot invalidate the above arguing. Though said terms and the term "voltage source" or the like are not exactly defined and exactly delimited against each other, they are not identical. A current/voltage source is an active element providing

electrical energy and should be suitable to provide a non-neglectible electrical current/voltage and therefore should not have a very low/high internal impedance (but must not provide a constant current/voltage and thus must not have a very high/low impedance). A current source as well as a voltage source are power sources providing electrical power.

3. *Main request and first auxiliary request*

3.1 Therefore, said expressions as used in claims 1 of the main request and first auxiliary request are unclear in the sense of Article 84 EPC. The Appellant's suggestion (see section VII. above) to resort to the description to interpret unclear features of the claims cannot be allowed since Article 84 EPC requires that claims must be clear in themselves when read using normal skills (see T 0454/89).

Moreover, since according to the application as originally filed (see e. g. the paragraph bridging pages 4 and 5 and Figure 3) the provision of a controlled **constant** current source is considered as being an essential feature of the subject-matter of the application-in-suit, said specified expression should be contained in the independent claim (requirement of Article 84 and Rule 29(1) and (3) EPC).

3.2 It is undisputed that said prior art document discloses a switching arrangement with all the features of the preamble of claim 1 of the main request except for an explicit mention that the claimed switching arrangement is suitable for a use with a high pressure discharge lamp (see in (A) in particular Figures 4 and 5, column 1 lines 6 to 21, column 2 lines 37 to 59,

column 3 lines 16 to 19, column 4 lines 36 to 42, and column 5 lines 11 to 29). It is, however, evident from (A) that the arrangement is suitable for the above-mentioned use. Thus, such a use cannot confer novelty to claim 1.

In view of the meaning of the term "current source", the switching arrangement of document (A) also comprises the feature of the characterizing part of said claim since the series connection of a voltage source ($+V_G$, Figure 5) and an electronic switching means (40-48), the latter having a finite internal impedance and being controlled by a control signal (signal B), can be regarded as the controlled current source or generator (see in (A) particularly column 5 lines 11 to 29 and Figure 5).

Therefore, claim 1 of the main request is not novel with respect to document (A).

3.3 Claim 1 of the main request is thus not allowable since it infringes Article 84 and is not novel in the sense of Article 54 EPC.

Claim 1 of the first auxiliary request is not allowable since it does not comply with Article 84 EPC.

Therefore, the main request and the first auxiliary request are not allowable.

4. *Second auxiliary request*

4.1 Claim 1 contains the clarified feature that the driving circuit comprises a controlled **constant** current source for controlling the shortcircuit switch (hereinafter called feature C2). Said feature is disclosed in the paragraph bridging pages 4 and 5 and Figure 3 of the

application as filed according to which the driving circuit has a controlled current source in the form of a transistor (28) whose current is defined by an emitter resistance (281) and thus provides a largely constant current.

4.2 Though the driving units (21, 23) of the circuitry of document (A) comprise a controlled current source for controlling the shortcircuit switch, they do not disclose a controlled **constant** current source for controlling the shortcircuit switch (see there particularly Figure 3 to 5 and the corresponding description), neither do it the remaining documents of the Search Report.

5. As already indicated, claim 1 of the second auxiliary request is novel and its feature C2 is disclosed in the application as originally filed. It remains to be examined whether the application meets all the other requirements of the EPC, in particular with regard to inventive step of claim 1 of the second auxiliary request and the question whether all amendments of said claim with respect to the original claim 1 except for feature C2 have a basis in the application as originally filed.

To avoid loss of an instance with respect to the matter not dealt with by the first instance, the Board of Appeal makes use of the power under Article 111(1) EPC to remit the case to the first instance for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Examining Division for further prosecution on the basis of the claims of the second auxiliary request as filed with the letter dated 20 May 1998.

The Registrar: The Chairman:

P. Martorana E. Turrini