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Anmeldenummer / Filing No / N° de la demande : 82 810 133-7

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Bezeichnung der Erfindung: **A device permitting of economising electric  
Title of invention: lighting energy.**  
Titre de l'invention :

Klassifikation / Classification / Classement : H05B 37/02

ENTSCHEIDUNG / DECISION  
vom / of / du 20 July 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet : **Baccanelli, Giuseppe**

Einsprechender / Opponent / Opposant : **Siemens AG**

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : **"Inventive step (No)"**

Leitsatz / Headnote / Sommaire



Case Number : T 480/89 - 3.4.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.1  
of 20 July 1990

**Appellant :** Siemens AG  
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**Representative :**

**Respondent :** Baccanelli, Guisepe  
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**Representative :** Baggiolini, Raimondo et al  
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**Decision under appeal :** Decision of Opposition Division of the European  
Patent Office dated 31 May 1989 rejecting  
the opposition filed against European patent  
No. 0 062 004 pursuant to Article 102(2) EPC.

**Composition of the Board :**

**Chairman :** K. Lederer  
**Members :** J. Roscoe  
G.D. Paterson

## Summary of Facts and Submissions

- I. European patent No. 0 062 004 was granted on the basis of European patent application No. 82 810 133.7 claiming priority from two applications filed in Switzerland on 31 March 1981 and 5 June 1981 respectively.

Claim 1, the only independent claim of the patent, reads as follows:

"A device for economizing electric lighting energy comprising electronic members associated with at least one photo-cell which permit subduing the light of a lamp or group of lamps so as to emit light with a luminous intensity inversely proportional or almost inversely proportional to the luminous intensity of the surrounding environment; the minimum luminous intensity (Figure 8) of the lamp or of the group of lamps being capable of being predetermined and preregulated at any point of the characteristic of attenuation of the lamp, characterized in that the photo-cell is exclusively illuminated by the internal end of at least one bundle of optical fibres (2), the external end of which is placed remote from the device, in order to receive only the light of the environment and to transmit it to the photo-cell."

- II. The Appellant filed notice of opposition against the patent, requesting that it be revoked in its entirety because of lack of inventive step in view of the prior art disclosed in the following documents:

GB-A-1 455 875 (a)  
DE-A-3 007 333 (b)  
DE-C-3 101 591 (c)  
US-A-4 023 035 (d)  
DE-C-3 132 207 (e) and  
DE-A-2 548 635 (f).

In particular the subject-matter of Claim 1 was rendered obvious by a combination of the teachings of documents (a) and (b).

III. The Opposition Division rejected the opposition. It held that although the features of the preamble of Claim 1 were disclosed in document (a), the document (b), the teaching of which the Opponent sought to combine with it was published after the priority dates of the patent in suit as were documents (c) and (d), furthermore that since there was no hint as to the use of optical fibres in documents (c), (d) and (e) they could not render the subject-matter of Claim 1 obvious.

Although the Opposition Division exercised the discretion conferred on it by Article 114(2) not to admit in evidence document (f) which was filed outside the opposition period, it explained why it was not considered to support the Opponent's case.

IV. The Appellant (Opponent) lodged an appeal against the decision and in the statement of grounds referred to documents (a), (d) and (f) and to the following new documents:

DE-B-2 425 721 (g) and  
DE-B-2 519 076 (h).

- V. In a communication issued on behalf of the Board the rapporteur explained why in his view the subject-matter of the claims of the patent did not involve an inventive step and expressed the view that revocation of the patent was therefore likely.
- VI. The Respondent (patentee) submitted a reasoned response to this communication and is understood to be requesting that the appeal be dismissed and the patent maintained unamended.
- VII. The Appellant requests that the decision under appeal be set aside and the patent revoked and, in the event of this request not being granted, oral proceedings.
- VIII. The Appellant argued as follows:

Contrary to what was stated in the decision, document (d) was published well before the priority dates of the patent in suit.

There was no dispute that document (a) disclosed the subject-matter of the preamble of Claim 1 and the problem of avoiding unnecessary use of energy, which was recognised in the decision as an essential purpose of the claimed arrangement had already been solved equally effectively in document (a). The particular solution presented in the characterising part of Claim 1 was lacking inventive step. What was required was to control the light from the lamp in accordance with the level of daylight used as measuring signal without interference from the lamp itself. Such control to this purpose not only inevitably followed from (a) but was already known from document (g) according to which sensor P responded only to the intensity of the daylight. There the arrangement served to control the lighting conditions in a

room with a lamp and windows by means of the sensor. Also in the state of the art referred to at col. 1, line 67 to col. 2, line 14 of document (g) the lamp was so controlled that the intensity of light from the lamp was reduced as that of the daylight increased to save energy.

In document (g) the photoelectric sensor was connected to the electrical components A0 to A3 by a conductor the outer end of which was remote from the device so that the sensor received light from the ambient only and not from the lamp, and was thus located as in the Claim 1 arrangement at the point where light was converted into electricity. It was, however a routine measure for the skilled person to replace an electrical signal carrying conductor by an optical fibre, for example as in document (f) where in the context of controlling the intensity of light from a lamp a bundle of light fibres was used. The fact that the detailed purpose here was to maintain the light output of the lamp constant was irrelevant to the matter at issue. If the electrical signal conductor between photocell and electric control device in (g) were to be replaced by an optic fibre as in (h) the photocell would have to be located at the inner end of the fibre in order to receive the light.

That the photocell had to be shielded from the light from the lamp for the system to function as required was well known and disclosed in (d).

Thus a device according to Claim 1 followed from (a) combined with the knowledge of the skilled person, or from (a) read in conjunction with (g) against the background of the skilled person's knowledge to use light fibres in appropriate circumstances for example, according to (f) or (h).

- IX. The Respondent contended that the core of the invention was that of controlling the intensity of a light(s) in a room to save energy on the basis of the lighting external to the room transmitted to it by a bundle of optic fibres and not the average lighting within the room as in (a), (b), (d), (f) and (h).

In (a) the box 12 was fastened on the internal wall of the room remote from the light(s) and the light(s) were switched on or their intensity increased when the ambient light intensity fell. Since the photocell received light from the lights, hunting would occur were it not for the use of a photocell more sensitive to the solar spectral distribution than to that of the lights.

For correct functioning the box should receive light only from the outside and this requirement was met by the use, according to the invention of a bundle of optic fibres to transmit the external light to the photocell. No-one had previously thought of this because they all considered the light inside the room had to be taken into account. The claimed device coped with a variety of conditions. Thus, in a room in which welding took place causing short-term high intensity lighting of the walls, the lighting supplied by the controlled lamps would be maintained at a constant level whereas with the prior art devices switching might occur.

The Respondent tentatively proposed amendment of Claim 1 by replacement of "the light of the environment" by "the external light".

#### Reasons for the Decision

1. The appeal is admissible.

2. Novelty

2.1 Since the novelty of the claimed device has not been contested by the Appellant the Board deems it unnecessary to deal with it in detail. It is sufficient to say that of the documents listed in items II and IV above:

(b), (c) and (e) were published after the filing date of the patent in suit and are therefore irrelevant to this matter;

(a), (d) and (g) make no reference whatsoever to the use of optic fibres; and

in the systems described in (f) and (h), which do employ optic fibres, it is not daylight but light derived exclusively from the lamp being controlled which is transmitted to a control circuit by the optic fibres for the purpose of stabilising the output of the lamp.

2.2 The subject-matter of Claim 1 and therefore that of the remaining claims all of which are appendant to it is thus novel in the sense of Article 54 EPC.

3. Inventive step

3.1 In part II item 2 of the appealed decision it is said to be common ground that (a) discloses all the features of the preamble of Claim 1. The Respondent has not subsequently contested this and the Board can find no reason to question it either. However in the arrangement disclosed in (a) the photoresistor (photocell) PR1 is mounted on the inside wall of the room in association with a manual switch.

At page 2, lines 50 to 56 it is stated that if the photoresistor is so positioned that light from the lamp(s) to be controlled can fall on it, alternate switching on and off may occur and it is proposed to avoid this by making the resistor more responsive to the spectral distribution of sunlight than to that of the lamps. The Board considers that the skilled person would recognise from this that it was the clear intention to sense and effect control in response to the ambient light and not illumination in the room, and to warn against placing the light sensor where it responds to the light from the controlled source, if possible, even though it provides a remedy for the hunting which might result were it so placed.

3.2 In (d) a device functioning on essentially the same principle comprises a photocell and associated electronic control circuitry contained within the adapter of a controlled lamp. The adapter has an adjustable window which can be aligned with any of three angularly spaced fixed windows to enable the user to have the photocell respond only to light coming from a particular direction, e.g. from a house window, so that the lamp can be switched on even though there may be some artificial light in the vicinity of the adapter (column 2, lines 39 to 42; column 4, lines 59 to 63). When the device is used to receive light from a window it is clear to the skilled person that the intention is to ensure that only light entering the window from outside i.e. light of the environment, or daylight, reaches the photocell.

3.3 In the system described in (g) for controlling the lighting in a room with lamps and windows it is again the intensity of the entering daylight (see Claim 1, line 4) which is determined by a sensor and used to control on- and off-switching of groups of lamps. Though it is not

stated where the sensor P is located the skilled person would realise that to ensure operation as described it would need to be placed or designed so as to respond to the daylight alone and not the overall illumination in the room. At column 2, lines 34 to 42 a clear distinction is drawn between daylight (Tageslicht) and the total light intensity (Gesamtbeleuchtungsstärke) in the room.

3.4 On the basis of the above the Board can accept neither the Respondent's contention that in the prior art represented by (a), (b), (d), (f) and (h) the lamp intensity was controlled on a different basis than in the present invention nor therefore his observation that skilled persons had not thought of the claimed system because they felt they had to take account of the light intensity inside.

3.5 In the Board's opinion the closest prior art is that disclosed in (a) which differs from the claimed device only in the manner in which ambient light (external light) is communicated to the photocell.

3.6 In accordance with the normal procedure followed by the Board in determining whether claimed subject-matter involves an inventive step it has first to be determined which problem or problems presented by the closest prior art are solved by provision of the features of the claimed matter which do not form part of that art.

As indicated above, in documents (a) and (d) the need to prevent the photocell from responding to light coming direct from the lamp is recognised and it is proposed in (a) to meet this need, in the case where the photocell is not already in a position which assures this, e.g. where the switch is very close to a window, by taking advantage of the fact that the spectral distribution of a lamp is

different from that of sunlight. Clearly this solution has its limitations since it may require the use of special and therefore expensive photocells to be effective. On the other hand the location of the photocell will be determined, at least in part, by factors, such as accessibility of the associated switch, which make it difficult to shield it from the lamp while at the same time enabling it to respond to the daylight intensity. A further practical problem is that items of furniture and human bodies might come between the controlling source of light and the photocell thus giving rise to undesired reactions of the control circuit.

The device as claimed in Claim 1 on the other hand is capable of overcoming these difficulties since it enables the photocell to be located in any position compatible with other requirements, e.g. combination with the light switch as in (a), while ensuring that it receives only daylight from a chosen direction.

- 3.7 Thus the problem to be solved in relation to the device disclosed in (a) is how to modify that device to ensure that it controls the lamp strictly in accordance with the intensity of the daylight while retaining its beneficial features.
- 3.8 No contribution to inventive step can be seen in appreciation of the problem since (a) itself refers to inadequacies in respect of this aspect of control and only suggests a solution which would immediately be seen by the skilled person to have limitations.
- 3.9 The skilled person seeking a solution to the problem must, in the Board's view, be expected to take into consideration all systems in which the light intensity of a specific source is required to exercise a controlling

function on the current supply to a lamp. Documents (f) and (h) both relate to such systems and in each case light from the controlling source (which also happens to be the controlled lamp) is communicated via a light fibre or cable to a more or less remote photocell forming an essential part of a circuit controlling the supply of current to the lamp. In (h) where this arrangement is described in juxtaposition with an alternative arrangement in which the photocell is located in essentially the same position as that occupied by the distal end of the fibre in the former arrangement it is observed (column 2, lines 14 to 19 and column 4, lines 1 to 28) that the arrangement with the fibre creates more possibilities of adaptation to various constructional circumstances.

- 3.10 The Board considers that this information would prompt the skilled person to consider the possibility of employing light fibres or cables in association with the photocell located as in (a) particularly in situations where practise revealed that the line of sight between photocell and source of daylight was liable to obstruction. He would be encouraged to pursue this possibility by his awareness of the propagation efficiency of such fibres, their property of excluding extraneous light, the availability of long lengths of highly flexible fibres and efficient connectors therefor and their successful practical application, generally known in the scientific world, for transmitting light to and image information from inaccessible places such as the interior of human organs and machines. In these circumstances it would be a routine matter for him to consider disposing the distal end of such a fibre on the source side of the potential obstructions and the Board cannot see and the Respondent has not suggested that he would encounter or expect to encounter any serious practical difficulties in implementing this.

4. For the above reasons the Board finds the subject-matter of Claim 1 to be lacking in inventive step as defined in Article 56 EPC, and consequently Claim 1 is not allowable (Article 52(1) EPC).
  
5. Since a dependent claim can only be allowed if there is an allowable independent claim to which it is appended, Claims 2 to 4 are not allowable either for this formal reason alone. However, even had any of these claims formed the subject of a separate request, the Board considers they would not have been allowable for the reasons set out in item 3.7 of the communication of the Board dated 14 March 1990, which have not been challenged by the Respondent. It should also be clear from the line of reasoning above that even had the tentatively proposed amendment of Claim 1 referred to in the last sentence of item IX of the summary of facts and submissions been made the result would have been the same.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
  
2. The patent is revoked.

The Registrar:

The Chairman:

P. Martorana

K. Lederer