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**Datasheet for the decision
of 6 June 2018**

Case Number: T 1387/13 - 3.4.02

Application Number: 09154919.6

Publication Number: 2101213

IPC: G02F1/13357

Language of the proceedings: EN

Title of invention:

Apparatus and methods for multiplanar optical diffusers and display panels for using the same

Applicant:

Cree, Inc.

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (no)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1387/13 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 6 June 2018

Appellant: Cree, Inc.
(Applicant) 4600 Silicon Drive
Durham, NC 27703 (US)

Representative: Boulton Wade Tennant
Verulam Gardens
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London WC1X 8BT (GB)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted on 16 January 2013
refusing European patent application No.
09154919.6 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman R. Bekkering
Members: A. Hornung
B. Müller

Summary of Facts and Submissions

- I. The applicant appealed against the decision of the examining division refusing European patent application No. 09154919.6 on the basis of Article 123(2) EPC.
- II. According to the statement setting out the grounds of appeal, the applicant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims according to a main request or an auxiliary request filed therewith.

As a precaution, the applicant requested oral proceedings.

- III. In a communication annexed to a summons to oral proceedings, the board informed the applicant about its provisional and non-binding opinion according to which, *inter alia*, the subject-matter of claim 1 of both requests on file lacked inventive step with respect to document

D5 = US2006/0152931 A.

- IV. The board's opinion concerning claim construction and lack of inventive step of the subject-matter of claim 1 of the main request was worded as follows (see points **6.2** and **7.1** of the communication annexed to the summons):

"6.2 Claim construction

6.2.1 Claim 1 comprises a "multiplane light diffuser including a first diffusion plane and a second diffusion plane defining a gap therebetween". According to the applicant (page 3, first paragraph of its statement of grounds of appeal), "...the gap is a space not occupied by a structure. As such, the gap defined in claim 1 must not

include intervening structures between the bounds defining the gap, by definition".

The board, in its preliminary view, is not persuaded that the term "gap" should be interpreted as narrowly as suggested by the applicant. Indeed, the term "gap" is a broad term and, according to established case law, "a broad term should be interpreted with regard to all technically logical interpretations thereof" (see the decision of the board of appeal in T 1408/04, point 1 of the reasons). While the board agrees with the applicant that the term "gap", interpreted narrowly, might designate a completely empty space, the term "gap, in a broader meaning, designates any kind of space separating two items, i.e. a gap between two items may either be empty or at least partially occupied by another item.

6.2.2 The applicant further contended that "claim 1 required at least some light transmitted by the first diffusion plane to be directly received at the second diffusion plane" (page 3, fourth paragraph of its statement of grounds of appeal).

The board notes, however, that the term "directly" is not present in claim 1. Therefore, the board is of the preliminary opinion that the claim should be given a broader interpretation than the one suggested by the applicant. In particular, the claim wording does not seem to exclude that the light transmitted by the first diffusion plane is received at the second diffusion plane after having passed through another optical element located in the gap defined between the first diffusion plane and the second diffusion plane.

(...)

7.1 D5 as closest prior art

7.1.1 D5, with reference to figure 3, appears to disclose a solid-state lighting device comprising:

an array of LEDs (36),

a multiplane light diffuser including a first diffusion plane (58; 60; 62) and a second diffusion plane (28) defining a gap (S1+G2+G3; G2+G3; G3) there between,

the multiplane light diffuser comprising

a diffuser plate (58; 60; 62) positioned at a first distance (H+G1) from the LED plane (36) for receiving the light emitted from the LEDs and to transmit diffused light,

a diffuser sheet (28) positioned at a second distance (T) from the LED plane (36) for receiving the first diffused light from the diffuser plate (58; 60; 62) via the gap (S1+G2+G3; G2+G3; G3),

the first distance (H+G1) being less than the second distance (T),

wherein the diffuser plate (58; 60; 62) has a pattern of prisms (58; 60) or lenslets (62) , i.e. multiple refractive structures,

and wherein the diffuser sheet is a "conventional light scattering layer" [see paragraph [0160]].

It follows that the claimed device differs from that of D5 in that the diffuser sheet comprises a diffuser film and a substantially transparent plate to support the diffuser film.

The objective technical problem corresponding to the differing feature could be seen to provide a concrete "conventional light scattering layer".

The skilled person is familiar with a plurality of different types of "conventional light scattering layer". A well-known example of a light scattering layer is a diffusing film supported on a transparent substrate. See, for instance, the diffusion sheets (12, 18) shown in figure 1 of D7 and comprising beads fixed with a binder on the surface of a transparent film (D7, page 22, lines 1 to 3). No inventive skills appear to be necessary to choose such a diffusing film on a transparent substrate for the "conventional light scattering layer" of D5.

7.1.2 The applicant's arguments in favour of inventive step consist essentially in explaining that D5 did not disclose a gap between a first diffusion plane and a second diffusion plane such that the first diffused light transmitted by the first diffusion plane was received directly by the second diffusion plane.

The board, in its preliminary opinion, cannot follow this argumentation since it is based on an unjustifiable narrow interpretation of the wording of claim 1 (see point 6.2 above)."

- V. In the annex to the summons to oral proceedings, the board raised doubts about the admissibility of the auxiliary request. Irrespective of the question of admissibility, the board provided its preliminary view on inventive step of the subject-matter of claim 1 of the auxiliary request. The board's opinion concerning lack of inventive step of claim 1 of the auxiliary request was worded as follows (see point **8.2** of the communication annexed to the summons):

"8.2 Inventive step

Notwithstanding the doubts about whether the auxiliary request should be admitted into the proceedings, it appears that the amended feature is not suitable for limiting the scope of the claim. Indeed, first and third distances being a function of each other always exist in devices which comprise the other features of claim 1. For instance, the first and third distances intrinsically define a ratio of distances. Therefore, it would appear that the amended feature is not novel over the disclosure of the available prior art and that the subject-matter of claim 1 lacks an inventive step for the same reasons as claim 1 of the main request."

VI. In response to the summons to oral proceedings, the applicant informed the board with its letter dated 10 May 2018 that it withdrew its request for oral proceedings. The applicant did not file any comments concerning the board's preliminary opinion as annexed to the summons.

VII. Following the applicant's letter of 10 May 2018, the oral proceedings were cancelled.

VIII. Independent claim 1 according to the main request reads as follows:

"A solid state lighting device, comprising:

a plurality of solid state light emitters (112, 113) that are configured to emit light; and

a multi-plane light diffuser (120) including a first diffusion plane (122, 140) and a second diffusion plane

(124) defining a gap (160) therebetween, the multi-plane light diffuser including a first side that is configured to receive the light (116) emitted from the plurality of solid state light emitters and a second side that is configured to transmit diffused light (128), wherein the multiplane light diffuser comprises:

a diffuser plate (122, 140) that includes the first side of the multiplane light diffuser and is positioned a first distance (147) from the plurality of solid state light emitters, the diffuser plate being configured to define the first diffusion plane, to receive the light (116) emitted from the plurality of solid state light emitters and to transmit first diffused light (126); and

a diffuser sheet (124, 142) that includes the second side of the multiplane light diffuser and is positioned a second distance (148) from the plurality of solid state light emitters, the diffuser sheet being configured to define the second diffusion plane and to receive the first diffused light from the diffuser plate (122,140) via the gap,

wherein the first distance (147) is less than the second distance (148), and characterised in that the diffuser plate (122, 140) comprises a diffuser having a pattern of multiple refractive structures and in that the diffuser sheet (124, 142) comprises a diffuser film and a substantially transparent plate (144) configured to support the diffuser film."

Independent claim 1 according to the auxiliary request differs from claim 1 of the main request in that "the plurality of solid state emitters (113) comprise a third distance (149) between adjacent ones of the plurality of solid state light emitters, and wherein the first distance (147) is a function of the third distance (149)".

Reasons for the Decision

1. Main request

In the communication annexed to the summons (see point IV. above), the board gave its preliminary view on the interpretation of the wording of claim 1, expressed its preliminary opinion, along with the underlying reasons, that the subject-matter of claim 1 lacked an inventive step and that the applicant's arguments in favour of inventive step, filed with the grounds of appeal, were not convincing. The applicant did not rebut the board's provisional opinion. The board sees no reason to deviate from its preliminary opinion, which therefore becomes final.

It follows that the subject-matter of claim 1 of the main request lacks an inventive step (Article 56 EPC).

2. Auxiliary request

2.1 The board does not exercise its power under Article 12(4) RPBA to not admit the auxiliary request into the proceedings and takes this request into account.

2.2 In the communication annexed to the summons, the board expressed its preliminary view, along with the underlying reasons, that the subject-matter of claim 1 lacked an inventive step and that the applicant's arguments in favour of inventive step, filed with the grounds of appeal, were not convincing. The applicant neither attempted to rebut the board's provisional opinion, nor submitted any new requests aiming at overcoming the objections. The board sees no

reason to deviate from its provisional opinion regarding inventive step, which therefore becomes final.

It follows that the subject-matter of claim 1 of the auxiliary request does not meet the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. Kiehl

R. Bekkering

Decision electronically authenticated