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D E C I S I O N
of 17 November 2004

Case Number: T 1118/00 - 3.4.2

Application Number: 92901906.5

Publication Number: 0594848

IPC: G02C 7/06

Language of the proceedings: EN

Title of invention:
Progressive Lens

Applicant:
Seiko Epson Corporation

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
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Catchword:
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Case Number: T 1118/00 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 17 November 2004

Appellant: Seiko Epson Corporation
4 - 1, Nishishinjuku 2-chome
Shinjuku-ku
Tokyo 160 - 0811 (JP)

Representative: Ertl, Nicholas Justin
Elkington and Fife LLP
Prospect House
8 Pembroke Road
Sevenoaks
Kent TN13 1XR (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 19 June 2000 refusing European application No. 92901906.5 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: A. G. Klein
Members: M. A. Rayner
M. J. Vogel

Summary of Facts and Submissions

I. In its appeal filed on 16 August 2000, the appeal fee being paid on the same date, the applicant appealed against the decision of the examining division of 19 June 2000 refusing European patent application number 92 901 906.5, the statement of grounds for appeal being filed on 26 October 2000. The patent application concerns a progressive power lens.

II. Examination Proceedings

During the examination proceedings, reference was made, inter alia, to document

D7 DE-A-3 335 109 (N.B. In the present decision, the board will refer to an English language patent family member GB-A-2 128 361, as this was the document referred to by the appellant in the appeal proceedings).

During oral proceedings, the examining division declared it had no objection under Article 123(2) concerning the main request before it (see point 6.1 of the Minutes).

III. Decision under Appeal

In its decision, the examining division decided that the subject matter of claim 1 before it did not involve an inventive step with respect to document D7.

The decision of the examining division took the following line.

Novelty

Figure 5(b) of document D7 discloses a progressive lens having a distance portion, a reading portion and an intermediate portion. The reading portion comprises an intermediate reading region, in which the curvature of the progressive surface considered along the principal meridian is substantially constant, and a portion in which the curvature is reduced at a substantially constant rate. Pt shown in Figure 5(b) of document D7 designates the power of the surface measured in vertical direction, i.e. along the principal meridian, the power being directly proportional to the curvature according to page 13, line 21 and page 15, lines 17, 18 (reference here is to the German text). The discussion in document D7 concerns a convex surface, i.e. the object side of the lens. The lens of document D7 has all the features of claim 1 except the feature that the region of constant curvature is at least 7mm.

Inventive Step

The well known aim of this region with constant power, which may be provided in the near region as well as in the far region, is to provide to the wearer of the lenses fields of vision as large as possible. In addition, such regions allow the optician checking the power of the lens to carry out an unambiguous measurement for determining whether or not a particular lens corresponds to a required prescription. The size of such an area should be at least the measuring area of the lens meter used. Having regard to the description of the present application the particular

minimum value of 7mm does not appear to solve a specific problem but appears to be a compromise between the requirement of having, on the one hand, a large region with constant power in order to provide a large field of clear view and, on the other hand, the goal of reducing thickness and weight of the lens as well as providing correction of aberrations in the peripheral region. The skilled person producing the progressive lens of figure 5(b) of document D7 would thus have chosen the size of the region of constant curvature according to specific needs and their weighting which does not involve inventive activity but merely follows directly from boundary conditions predetermined by specific needs for which the lens is designed. In doing so the skilled person directly achieves a lens according to claim 1 which cannot, therefore, be regarded as defining inventive subject matter in the sense of Article 56 EPC.

IV. Case of the Appellant

(a) *Requests*

The appellant requests that a patent be granted based on the documents specified in the letter of 27 September 2004 and on an auxiliary basis, that oral proceedings be held. The features of claim 1 are the same as those of the claim refused by the examining division as main request but the two part form has been amended.

(b) *Arguments*

Novelty

The position of the appellant is that the skilled person would not, in the context of the disclosure in document D7, interpret the graph of Figure 5(b) as showing a reading region as claimed. It is true that curvature of a lens is proportional to surface power. However, the graph in Figure 5(b) does not show surface curvature ρ but power P of the lens, which the skilled person knows to be determined by combination of surface powers of the two faces of the lens. There is thus a crucial distinction between surface curvature and focal power of the lens. Surface curvature ρ is explicitly shown in figure 6(b) relating to the same lens as that of Figure 5(b), and from Figure 6(b) it is apparent that, in the reading region of the lens, ρ is constant. Use of the Greek letter ρ for curvature and the Latin letter P for focal power appears to have caused confusion. The appellant, as reflected in the two part form of the claim, does not contest that a portion of constant curvature in the reading region is novel, as indeed the whole of the reading region is of constant curvature in document D7. In the light of this, it is irrelevant whether or not this feature is well known. What is new is not the region of constant curvature but the provision of a region in which the curvature changes at a substantially constant rate.

Inventive Step

Provision of a region of changing curvature from the intermediate region to the peripheral portion of the

lens provides a solution to the problem of making a progressive power lens with reduced weight and thickness as well as a good visual field. Although document D7 is concerned with the same problem, the solution adopted is to provide different curvatures along and transversely of the principal meridian (see Figure 6(a)). Document D7 does not therefore teach the skilled person the presently claimed solution.

(c) *Independent claim*

The independent claim upon which the request of the appellant is based is worded as follows:

"1. A progressive power lens which includes a distance portion (1) for looking at a location a relatively great distance away, a reading portion (2) for looking at a location a relatively short distance away, and an intermediate portion (3) between the distance portion and the reading portion for looking at a location at a relatively intermediate distance, wherein the curvature of at least one of the oppositely facing refracting surfaces of the reading portion (2) is constant from

(i) the boundary point between the reading portion (2) and the intermediate portion (3) of the lens,

characterised in that the curvature of the at least one of the oppositely facing refracting surfaces of the reading portion (2) is constant between the boundary point and

(ii) an intermediate reading region which lies at least 7mm along the principal meridian from the boundary point, and in that

the curvature of the at least one of the oppositely facing refracting surfaces of the reading

portion is changed at a substantially constant rate along a principal meridian (4) between

(iii) the intermediate reading region, and

(iv) a peripheral portion of the lens, and wherein said changing curvature is achieved by reducing the curvature of the object side at the substantially constant rate or increasing the curvature of the eyeball side at the substantially constant rate."

Reasons for the Decision

1. The appeal complies with the provisions mentioned in Rule 65(1) EPC and is therefore admissible.

2. *Article 123 EPC*

The board sees no reason in the present *ex parte* proceedings caused by the revised delimitation of claim 1 to disagree with the explicit position of the examining division that it had no objection under Article 123(2) concerning the main request before it.

3. *Document D7*

In the present case, the following parts of document D7 are of interest in assessing whether the examining division or the appellant is correct in making an assessment of its disclosure. Particularly relevant parts are shown in quotation marks inserted by the board for ease of understanding.

3.1 Page 1, lines 126 et seq. recite that Figures 5(a) and 5(b) respectively illustrate the distribution of astigmatism and "the focal power of the lens" on each point on the principal meridian curve ….

3.2 Page 2, lines 3 et seq. recite that Figure … 6(b) illustrate[s] "the curvature" on each point of the principal meridian curve of … according to Figure 5.

3.3 Page 3, lines 1-2 recite … the curvature (hereinafter referred to as ρt) along the principal meridian curve ….

3.4 Page 3, lines 21-24 recite that the power of a lens is determined mainly by the focal power of the convex surface of the lens "and that of the concave surface" thereof.

3.5 Page 3, lines 106-108 recite that in Figure … 5, … (b) shows the distribution of the "focal power Pt of the lens" along the principal meridian curve ….

3.6 Page 4, lines 26-28 recite that in figure 6 ρt and ρs respectively stand for the curvature on the principal meridian curve and the curvature in the direction perpendicular to the principal meridian…. [This passage includes page 13, line 21 as referred to by the examining division in the German text]

3.7 Page 4, lines 104 to 117 recite that an aspherical "surface" factor arises because the curvature of each position on the "convex refractive surface" varies with direction. In the case of a spherical "surface", the curvature in all directions is the same. The magnitude of the aspherical "surface factor" is expressed by the

difference between the maximum curvature and the minimum curvature at each point on the "convex surface". Since the "curvature is proportional to the focal power", the magnitude of the aspherical "surface" factor can be expressed by the difference of the maximum and the minimum focal power at each point on "the surface" of the lens. [This passage includes page 15, lines 17,18 as referred to by the examining division in the German text]

4. *Novelty*

4.1 It can be concluded from the passages of document D7 mentioned in section 3 above that the novelty analysis of the examination division does not fit very well to the disclosure of document D7 because it is Figure 6(b) thereof which shows curvature considered along the principal meridian (see point 3.2 above). Figure 5(b) referred to by the examining division in this context shows not surface curvature but focal power of the lens on each point on the principal meridian curve (see points 3.1 and 3.5 above). There is therefore a flaw in the reasoning of the examining division because, consistent with the disclosure of document D7 referred to point 3.4 above and as pointed out by the appellant, the skilled person knows focal power to be determined by combination of surface powers of the two faces of the lens. In fact the base curve for the Figure 5 lens is said to be 7.5 Diopters (see page 3, line 94), whereas the power of the far zone shown in Figure 5 is 4.5 Diopters (see page 4, line 102). Consequently as Figure 6(b) of document D7 plainly shows curvature to be constant in the reading region, Figure 5(b) relating to lens power of the same lens, i.e. a combination

including the two surface powers, cannot be interpreted to show what is claimed in claim 1, namely the curvature of at least one of the oppositely facing refracting surfaces of the reading portion changed at a substantially constant rate along a principal meridian between the intermediate reading region and a peripheral portion of the lens. Therefore, it seems, not surprisingly in view of the complexity of the terminology in document D7, that the lens power Pt (see point 3.5 above) and surface curvature ρt (see points 3.3 and 3.6 above) became, as indicated by the appellant, confused in the analysis of the examining division. Concerning the remark that "curvature is proportional to the focal power" in document D7 (see point 3.7 above), the board observes that while it is of course true, as explained by the appellant, that curvature of a lens is proportional to surface power and this could be what is meant in document D7 as the word "surface" is repeatedly used, what cannot be meant is that the lens power shown in Figure 5(b) is a surface curvature. Therefore, contrary to the analysis of the examining division not just the numerical value, but all the features of the characterising portion of claim 1 are novel over the disclosure of document D7.

5. *Inventive Step*

5.1 In view of the novelty analysis effected by the board in relation to document D7, the arguments relating to lack of inventive step advanced by the examining division are not that relevant to the characterising part of claim 1 because they do not bear on the provision of a reading region of changing curvature between the intermediate reading region and a

peripheral portion of the lens and thus offer no convincing challenge on inventive step in relation to document D7. The skilled person producing the progressive lens with the lens power shown in figure 5(b) of document D7 would not have had any reason to deviate from the explicitly taught entire reading region of constant curvature as shown in figure 6(b). The curvature ρt shown in Figure 6(a), i.e. the solution advocated by document D7, even looks to have a region of changing curvature and then a region of constant curvature towards the periphery, i.e. just the opposite of the present claim. Thus, although the board has no reason to question the position of the examining division about measurement of lens power in practice by the optician for checking the prescription, this approach is not directly relevant to the subject matter claimed. The board therefore found itself persuaded by the view of the appellant that the novel features of claim 1 provide a not obvious alternative solution to that of document D7 to the problem of making a progressive power lens with reduced weight and thickness as well as a good visual field.

5.2 The remaining documents in the file are not more relevant to inventive step of the subject matter discussed in the foregoing than is document D7, thus detailed analysis of their content is not necessary in the context of this decision. On the basis of the file before it, the board thus has not seen a convincing line of argument challenging inventive step.

5.3 Therefore the board is satisfied that the subject matter of the independent claim can be considered to involve an inventive step within the meaning of Article 56 EPC.

6. *Oral Proceedings*

6.1 Since oral proceedings were requested only on an auxiliary basis, the for the appellant positive outcome of the appeal renders such proceedings unnecessary.

7. *Further Procedure*

7.1 The board having satisfied itself that the application and the invention to which it relates meet the requirements of the Convention, grant of a patent can be envisaged (Article 97(2) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent on the basis of the following documents:

   Description
   (a) pages 1-3,8,17,21 and 24 as originally filed
   (b) pages 4,7,9-16,18-20,22 and 23 as filed with the letter of 27 September 2004

   Claims
   1-5 filed with the letter of 27 September 2004

   Drawings
   Figures 1-11 as published.

The Registrar: The Chairman:

P. Martorana A. G. Klein