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File Number: T 325/90 - 3.3.1
Application No.: 85 108 369.1
Publication No.: 0 167 173
Title of invention: Color photographic materials

Classification: G03C 7/26

D E C I S I O N
of 12 August 1992

Proprietor of the patent: FUJI PHOTO FILM CO., LTD.

Opponent: Agfa-Gevaert AG, Leverkusen

Headword: Colour photographic materials/FUJI

EPC Article 56

Keyword: "Inventive step (yes, after introduction of a missing essential technical feature)"



Case Number : T 325/90 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 12 August 1992

Appellant :
(Proprietor of the patent)

FUJI PHOTO FILM CO., LTD.
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Representative :

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Respondent :
(Opponent)

Agfa-Gevaert AG, Leverkusen
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Decision under appeal :

Decision of Opposition Division of the European
Patent Office of 13 February 1990 posted on
23 March 1990 revoking European patent
No. 0 167 173 pursuant to Article 102(1) EPC.

Composition of the Board :

Chairman : K.J.A.Jahn
Members : R.K. Spangenberg
J.A. Stephens-Ofner

Summary of Facts and Submissions

- I. The appeal was filed on 19 April 1990, accompanied by the payment of the appropriate fee. It lies from the decision of the Opposition Division of the EPO delivered orally on 13 February 1990, with written reasons posted on 23 March 1990, by which European patent No. 0 167 173 was revoked. This patent was granted in response to European patent application No. 85 108 369.1 filed on 5 July 1985 and claimed priority of 6 July 1984 of an earlier application in Japan. The patent specification contained 21 claims. The decision under appeal was based substantially on the claims as granted, two clerical errors in the only independent Claim 1 having been corrected.
- II. The Opposition Division considered that the subject-matter of Claim 1 was novel with respect to

(1) GB-A-2 013 356

representing the closest state of the art, since the wavelengths of the weight-averaged wavelength spectral sensitivity distributions and their explanations were not disclosed therein. However, it did not involve an inventive step, since the disputed patent related to no more than the indication of numerical ranges for functional technical features already disclosed in document (1) with a view to solving at least partially the same technical problem. In respect of the promised improved discrimination of various green colours the contested Claim 1 did not contain technical features suitable for solving it. This part of the stated technical problem was therefore disregarded when assessing the inventive step.

III. Together with the statement of grounds of appeal, received on 2 August 1990, the Appellant (the Patent Proprietor) submitted an amended text of the patent, containing 20 claims. On 27 March and 24 June 1992 the Appellant further amended the text of the patent, in response to two communications of the Board pursuant to Article 110(2) EPC, and filed new Claims 1 to 19 and amended pages of the description corresponding thereto. New Claim 1 (after replacement of "capable of being destroyable" by "capable of being destroyed" by way of correction) reads as follows:

"A silver halide color photographic material comprising a support having thereon at least one blue-sensitive silver halide emulsion layer comprising a yellow dye-forming coupler, at least one green-sensitive silver halide emulsion layer comprising a magenta dye-forming coupler, and at least one red-sensitive silver halide emulsion layer comprising a cyan dye-forming coupler, characterized in that the wave length ($\bar{\lambda}_G$) weight-averaged between 500 nm and 600 nm of spectral sensitivity distribution of all green-sensitive layers is located in the range of 520 nm to 580 nm, the wavelength ($\bar{\lambda}_{-R}$) weight-averaged between 500 nm and 600 nm of spectral sensitivity distribution of one or more donor layers which exert an interlayer effect to at least one red-sensitive emulsion layer comprising a cyan dye-forming coupler is located in the range of 500 nm to 560 nm, ($\bar{\lambda}_G$) is greater than ($\bar{\lambda}_{-R}$), the difference of ($\bar{\lambda}_G - \bar{\lambda}_{-R}$) is greater than 5 nm and said one or more donor layers comprise one or more uncolored magenta dye-forming couplers which magenta dye is not capable of being washed out nor capable of being destroyed during the development processing and further comprise at least one DIR coupler which releases a development restrainer or a precursor thereof having high

diffusibility, wherein said weight-averaged wavelength ($\bar{\lambda}_G$) is defined by the following equation:

$$\bar{\lambda}_G = \frac{\int_{500 \text{ nm}}^{600 \text{ nm}} \lambda \cdot S_G(\lambda) \, d\lambda}{\int_{500 \text{ nm}}^{600 \text{ nm}} S_G(\lambda) \, d\lambda}$$

wherein $S_G(\lambda)$ represents said spectral sensitivity distribution by equi-energy spectrum of all green-sensitive layers, and said weight-averaged wavelength ($\bar{\lambda}_R$) is defined by the following equation:

$$\bar{\lambda}_R = \frac{\int_{500 \text{ nm}}^{600 \text{ nm}} \lambda \cdot S_{-R}(\lambda) \, d\lambda}{\int_{500 \text{ nm}}^{600 \text{ nm}} S_{-R}(\lambda) \, d\lambda}$$

wherein $S_{-R}(\lambda)$ represents the spectral sensitivity distribution of said one or more donor layers.

The Appellant contested the decision under appeal, because in his opinion the Opposition Division did not consider that in document (1) there was no statement that $\bar{\lambda}_G$ has to be greater than $\bar{\lambda}_R$ by more than 5 nm. On the contrary, according to document (1) it was possible to provide donor layers wherein either $\bar{\lambda}_G$ is greater than $\bar{\lambda}_R$ or vice versa. Furthermore, document (1) did not disclose or suggest the new feature, now contained in Claim 1, according to which the said "one or more donor layers comprise one or more uncoloured magenta dye-forming couplers which magenta dye is not capable of being washed out or capable of being destroyed during the development processing". On the contrary, he submitted that that document expressly states that it is most important that no final dye image is present in the donor layer. Furthermore, he argued that it was demonstrated by the

examples of the disputed patent that the combination of characterising features of the amended Claim 1 had the surprising effect of improving the image sharpness of the green-sensitive layer while maintaining the desired spectral sensitivity distribution in that layer. Thus the subject-matter now claimed was not obvious.

- IV. The Appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the text submitted on 27 March and 24 June 1992 (amended Claims 1 to 19, page 4 submitted on 2 August 1990, new pages 3 and 5, submitted on 27 March 1992, new pages 22, 42, 44 and 45 submitted on 24 June 1992, pages 1, 2, 6 to 21, 23 to 41, 43, 46 to 50 and Figures 1 to 6 as granted).
- V. The Respondent (the Opponent), being duly invited to file his observations with respect to the Statement of Grounds of appeal and the amended text of the patent, did not reply.

Reasons for the Decision

1. The appeal is admissible.
2. Amended Claim 1 is based on Claims 1, 4 and 12 as filed and granted. Dependent Claims 2 to 19 correspond to Claims 2, 3, 5 to 11 and 13 to 21 as filed and granted. Therefore, the requirements of Article 123(2) and (3) EPC are met.
3. The Board is satisfied that the subject-matter of Claim 1 is novel, since document (1) does not disclose at least the newly introduced features that the DIR coupler contained in the donor layer(s) is highly diffusible and

that the donor layer(s) contain a magenta dye-forming coupler which is not capable of being washed out or being destroyed during the development processing.

4. Inventive step

4.1 The disputed patent relates to the improvement of the colour reproduction and the sharpness of colour photographic materials (see page 2, lines 5 and 6). In the Board's judgment document (1), obviously corresponding to US-A-4 306 015 referred to on page 4, line 34 to page 5, line 11 represents the closest state of the art. This document concerns the improvement of the colour reproduction of photographic materials in general (see page 2, line 65 to page 3, line 16). In addition, it is stated on page 3, lines 17 to 21, that DIR couplers in general also contribute to the improvement of the image sharpness due to the "Eberhard effect". This document proposes to solve the problem of improving the colour reproduction essentially by incorporating in the photographic material a donor layer containing a DIR coupler. However, no restriction is mentioned concerning the spectral sensitivity of this donor layer or the relation of this spectral distribution to that of the green sensitive layer. Moreover, this document requires that no photographic image is present in the donor layer after processing, i.e. that the DIR coupler either produces a colourless product or that any dye image formed in that layer is washed out or destroyed during processing (see page 1, lines 32 to 55). By contrast, the patent requires that a magenta image is formed in the donor layer. It is pointed out in the description (see page 5, lines 10 to 15), that this means that this layer contributes at least 10% to the final density of the photographic material, whereas in document (1) it is stated that this contribution is "no more than at the most

10%" of the final density (see page 2, lines 18 to 20). In the examples of document (1) it is further stated that the donor layer is interposed in a colour negative tripack in such a way that it only interacts with the green sensitive layer (see page 10, lines 58 to 59). This implies that the couplers used therein are not highly diffusible, because otherwise they would also interact with the other light-sensitive layers of the colour negative material.

- 4.2 Having regard to this closest state of the art the technical problem underlying the disputed patent can be seen in providing a further photographic material of good colour reproduction and image sharpness.

The patent proposes to solve this technical problem by incorporating into the photographic material one or more donor layers which exert an interlayer effect to at least one red-sensitive emulsion layer, the spectral sensitivity distribution of all green sensitive layers and the donor layer(s) being determined as defined in Claim 1; the said one or more donor layers comprising one or more uncoloured magenta dye-forming couplers, the magenta dye formed from them not being capable of being washed out nor capable of being destroyed during the development processing, and further comprising at least one DIR coupler which releases a development restrainer or a precursor thereof having high diffusibility. Thus, Claim 1 as now amended contains the technical features necessary for improving the colour reproduction in particular in the green area of the spectrum, while maintaining good image sharpness, which features were missing in Claim 1 as granted.

It follows from the data contained in Examples 1 and 2 and Figures 4 to 6, in particular the table on page 45 of the patent specification that the existing technical problem has thereby been effectively solved.

4.3 According to Claim 1 the disputed patent requires the presence of a highly diffusible development restrainer in the donor layer, i.e. one which has a diffusibility comparable to the total film thickness of the photographic material swollen in the processing liquid (see page 2, lines 39 to 41). The presence of such a development restrainer is necessary in order to achieve excellent image sharpness by the "Eberhard effect" (see page 2, lines 32 to 44). However, as it is stated in the patent specification, page 4, lines 54 to page 5, line 2, the highly diffusible development restrainer not only influences the green layer(s) adjacent to the donor layer(s) but also the other light-sensitive layers of the photographic material, thereby impairing the colour reproduction particularly in the green area of the spectrum, and, therefore, requires the compensating colour density of the donor layer in that area of the spectrum, which is an essential feature of the present Claim 1. This problem does not arise in the photographic material disclosed in document (1), since the development restrainers used therein are not highly diffusible. Hence the disclosure of this document cannot provide any suggestion to the person skilled in the art to solve the present technical problem in the way proposed by the patent in suit. On the contrary, since document (1) expressly states that the donor layer must not substantially contribute to the overall colour density, it clearly points away from the solution proposed by the disputed patent, which requires just this substantial contribution of the donor layer to the overall colour density.

4.4 Since the subject-matter of the present Claim 1 involves an inventive step for this reason alone, it is not necessary to decide whether or not the other differences

between Claim 1 and the disclosure of document (1), in particular the specific spectral sensitivity distribution, further contributes to the inventive step.

5. Claims 2 to 19 all relate to specific embodiments of the subject-matter of Claim 1 and derive their patentability from it.

6. The Board is satisfied that the description as amended is in conformity with the present set of claims. In particular, in view of the disclosure on pages 29 to 33 of EP-A-0 107 112 (document (2) cited in the notice of opposition) and in the absence of any evidence to the contrary, the Board accepts the Appellant's submission of 24 June 1992 that all DIR-couplers now indicated in the description as being "couplers according to the invention" in fact are capable of releasing a highly diffusible development restrainer.

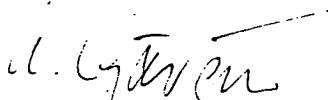
Order

For these reasons, it is decided that:

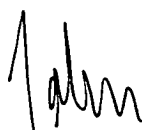
1. The decision under appeal is set aside.

2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of the text indicated in paragraph IV above.

The Registrar:


E. Gorgmaier

The Chairman:


K. Jahn