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Beschwerdekammern | Boards of Appeal | Chambres de recours

Korrektur erledigt in Paldes mla 4/6/91

Case Number : T 381/88 - 3.3.1

Decision of 30 April 1991 correcting
an error in the
D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 3 December 1990

Appellant : (Opponent)
Agfa-Gevaert AG, Leverkusen
Patentabteilung
Postfach
5090 Leverkusen 1

Respondent : (Proprietor of the patent)
Konica Corporation
26-2, Nishi-shinjuku 1-chome
Shinjuku-Ku
Tokyo (JP)

Representative :
Ellis-Jones, Patrick
14 South Square
Gray's Inn
London EC1R 5EU (GB)

Decision under appeal :
Decision of Opposition Division of the European Patent Office dated 22 June 1988 rejecting the opposition filed against European patent No. 0 083 377 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : K. Jahn
Members : F. Bauriedel
J. Stephens-Ofner

TE 38188X

In application of Rule 89 EPC the Decision given on 3 December 1990 is hereby corrected as follows:

The second paragraph on page 7 of the Decision should read:

"At the conclusion of the oral proceedings, the Board announced its decision."

The Registrar: The Chairman:

E. Görgmaier K. Jahn

BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Publication in the Official Journal ~~Yes~~ / No

File Number: T 381/88 - 3.3.1

Application No.: 82 902 092.4

Publication No.: 0 083 377

Title of invention: Silver halide color photographic sensitive material

Classification: G03C 7/20

~~D E C I S I O N~~

of 3 December 1990

Applicant:

Proprietor of the patent: Konica Corporation

Opponent: Agfa-Gevaert AG

Headword:

EPC Article 56

Keyword: "Inventive step (affirmed)"

Headnote

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Summary of Facts and Submissions

I. European patent No. 83 377 was granted on 15 October 1986 on the basis of eight claims in response to European patent application No. 82 902 092.4 filed on 10 July 1982. The only independent claim read as follows:

"A light sensitive silver halide color photographic material comprising at least two silver halide emulsion layers in one spectral region but having different sensitivities on the same side of a support wherein each of the at least two silver halide emulsion layers with different sensitivities contains at least one type of monodispersed silver halide crystals and at least one of the at least two silver halide emulsion layers comprises silver iodobromide containing at least 4 mole% of silver iodide, the iodine content in the emulsion layer having the highest sensitivity being higher than that of the emulsion layer having the second highest sensitivity."

II. Notice of opposition was duly filed requesting the revocation of the patent on the grounds that its subject-matter lacked novelty and did not involve an inventive step. The opposition was supported by documents

(1) DE-A-1 772 625 and
(2) DE-A-2 932 650.

III. By a decision dated 22 June 1988 the Opposition Division rejected the opposition filed against the aforementioned patent.

The Opposition Division held that the claimed photographic material was novel, because citation (1) concerning a silver halide colour material did not mention monodispersed silver halide crystals, and citation (2) was

silent on the question of the order of layers combined with their sensitivities.

The Opposition Division also stated that "silver halide emulsions containing at least one type of monodispersed silver halide crystals" and a "polydispersed silver halide emulsion" would be discernible in each embodiment.

The disputed patent was considered to show an unexpected improvement, because Example 1, Table 3 shows an improvement in the latitude of exposure by the use of a monodispersed emulsion, instead of a polydispersed emulsion, and also because no indication to use monodispersed emulsions in a colour photographic material was given in either citation.

In the opinion of the Opposition Division, the fact that a mixture of a small amount of a monodispersed emulsion and a larger amount of a polydispersed emulsion would not show the advantage of a broader latitude of exposure did not require an amendment of the claims, because the information in the description of the patent in suit enabled a skilled man to select the right amount of a monodispersed emulsion in order to achieve the desired beneficial effect.

IV. Notice of appeal was lodged simultaneously with a statement of grounds of appeal by the Appellant (Opponent) on 3 August 1988 with payment of the prescribed fee. The novelty objection was maintained. Moreover, the fact that the claimed effect could not be achieved within the narrow confines of the examples of the disputed patent cast strong doubts on whether this effect could be obtained throughout the entire scope of the claim.

On 28 January 1989 the Appellant submitted experiments which allegedly show that an improved latitude of exposure by the use of monodispersed silver halide was not obtained.

During the oral proceedings held on 3 December 1990 the Appellant argued as follows:

(a) Claim 1 of the main request covers emulsions comprising polydispersed silver halide, as well as some monodispersed silver halide. Since such emulsions could not be distinguished from the usual polydispersed emulsions this claim would therefore include the prior art photographic materials described in document (1), and thus lack novelty.

(b) The asserted improvements of exposure latitude and sensitivity could not be achieved by the features of Claim 1 of the main request, namely if, in a material according to Example 1 of document (1), a polydisperse emulsion was replaced by an emulsion consisting of only one type of monodispersed silver halide crystals.

(c) The Appellant's experimental results demonstrated that exposure latitude and sensitivity would decrease with the amount of monodispersed crystals contained in the layers compared.

(d) Example 2 demonstrated that the exposure latitude was not influenced by the features of Claim 1 of the main request, because practically identical LES-values of the red sensitive layers between specimen 11 (LES = 2.73) and specimen 10 (LES = 2.72 comparative example) were shown in Table 5 of the patent specification. The values referring to relative red sensitivity did not prove a surprising effect because

the higher red sensitivity of specimen 11 in contrast to specimen 10 was to be expected owing to the higher content of iodide in emulsion 2 (7 mole% iodide) compared with the content of 2 mole% iodide in emulsion 3 of specimen 10. Moreover, the small differences in the light sensitivities can be considered to lie within the limits of experimental error.

The claimed materials, therefore, lack the surprising effect considered to be necessary to establish or support an inventive step.

V. During the oral proceedings, the Respondent filed a series of new claims. The Respondent confirmed that Claim 1 of the main request did not exclude the presence of some polydisperse emulsion. The claim, he argued, should be read with a view to making technical sense of it. Thus, if one could not tell whether a monodisperse emulsion was present in a composition because of the coexistence of various emulsions, then it would be sensible to conclude that the claim was not infringed.

It was also submitted that the patent was based on the finding that a combination of good exposure latitude and good sensitivity could be achieved by using a monodispersed silver halide containing emulsion. This should be considered as surprising, because it was known that a monodisperse emulsion would provide good sensitivity at the expense of poor exposure latitude. The experiments given in the specification clearly show that by using a monodisperse emulsion and complying with the other requirements of Claim 1 the desired results can be achieved. The comparative experiments submitted by the Appellant did not provide a valid comparison, because the polydisperse emulsions had a variation coefficient of 0.40

and 0.43 in contrast to those used in the examples of the specification which display a variation coefficient of 0.25 and 0.28.

However, even if the Appellant's comparative experiments were considered relevant, the Board should find inventive step to be present despite the absence of a surprising improvement, because there is no disclosure in either document (1) or (2) of the use of monodisperse emulsions in a photographic colour material.

Further and in the alternative, Examples 1 to 3 of the disputed patent do provide evidence for surprising improvements. Example 1 demonstrates improvements in exposure latitude and relative speed.

VI. The Appellant (Opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent (Patentee) requested (main request) that the appeal be dismissed and that the patent be maintained on the basis of the claims as granted and with the deletion of the word "preferably" at line 53, page 2 of the description of the granted patent.

He requested, by way of auxiliary requests, that the patent be maintained on the basis of the description amended as set out in the main request, and with claims as formulated in the auxiliary requests 1, 2 and 3 as submitted in the course of oral proceedings.

The main claims of the auxiliary requests 1, 2 and 3 read as follows:

Auxiliary request 1:

"A light sensitive silver halide color photographic material comprising at least two silver halide emulsion layers in one spectral region but having different sensitivities on the same side of a support, wherein each of the at least two silver halide emulsion layers with different sensitivities contains at least one type of monodispersed silver halide crystals and at least one of the at least two silver halide emulsion layers comprises silver iodobromide containing at least 4 mole% of silver iodide, the iodine content in the emulsion layer having the highest sensitivity being higher than that of the emulsion layer having the second highest sensitivity and the emulsion layer having the lowest light sensitivity of the at least two silver halide emulsion layers with different sensitivities contains at least two types of monodispersed silver halide crystals with different average crystal sizes."

Auxiliary request 2:

"A light sensitive silver halide color photographic material comprising at least two silver halide emulsion layers in one spectral region but having different sensitivities on the same side of a support, wherein each of the at least two silver halide emulsion layers with different sensitivities consists of at least one type of monodispersed silver halide crystals and at least one of the at least two silver halide emulsion layers comprises silver iodobromide containing at least 4 mole% of silver iodide, the iodine content in the emulsion layer having the highest sensitivity being higher than that of the emulsion layer having the second highest sensitivity."

Auxiliary request 3:

"A light sensitive silver halide color photographic material comprising at least two silver halide emulsion layers in one spectral region but having different sensitivities on the same side of a support, wherein each of the at least two silver halide emulsion layers with different sensitivities consists of at least one type of monodispersed silver halide crystals and at least one of the at least two silver halide emulsion layers comprises silver iodobromide containing at least 4 mole% of silver iodide, the iodine content in the emulsion layer having the highest sensitivity being higher than that of the emulsion layer having the second highest sensitivity and the emulsion layer having the lowest light-sensitivity of the at least two silver halide emulsion layers with different sensitivities contains at least two types of monodispersed silver halide crystals with different average crystal sizes."

At the conclusion of the oral proceedings, the Board announced its decision allow the appeal on the basis of auxiliary request 3.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.

2. There are no formal objections to the amended version of Claim 1 according to the auxiliary requests 1, 2 and 3, since their features are supported by the original Claims 1 and 2 and the examples which disclose materials with layers consisting completely from monodispersed silver halide, and do not extend the protection conferred.

3. **Main request**

The disputed patent is concerned with a light sensitive silver halide colour photographic material comprising at least two silver halide emulsion layers in one spectral region having different sensitivities.

Such materials are known from document (1) which is considered to represent the closest prior art.

This request fails since Claim 1 covers embodiments which are not clearly distinguished from the colour photographic materials known by document (1), Example 1 as will be shown below.

Example 1 of document (1) describes a colour photographic material which is also characterised by

- two silver halide emulsion layers in one spectral region having different sensitivities;
- on the same side of a support;
- one of the two silver halide emulsion layers comprises silver iodobromide containing at least 4 mole% of silver iodide;
- the iodine content in the emulsion layer having the highest sensitivity being higher than that of the emulsion layer having the second highest sensitivity.

It is true that this document is silent on whether the emulsions are mono- or polydisperse; nevertheless, both parties agree that the skilled reader would presume that the structure of these emulsions is, as usual, polydisperse.

Therefore, the only feature which cannot be derived from document (1) is that

- each of the two emulsion layers with different sensitivities contains at least one type of monodispersed silver halide.

The preferred meaning of the term "monodisperse" was given in the patent specification on page 2, line 53 to page 3, line 9. During oral proceedings this imprecise definition was clarified by deleting the word "preferably" in line 53. This term may distinguish the claimed materials from the prior art materials containing polydisperse emulsion layers and therefore may establish novelty for those photographic materials built up from emulsion layers containing silver halide which is **completely monodisperse.**

However, owing to the expression "...contains...at least one type of monodispersed silver halide...", Claim 1 also covers emulsion layers containing in addition to an amount of monodispersed silver halide, a higher, indeterminate amount of polydispersed silver halide. This was expressly confirmed by the Respondent during the pre-grant proceedings (cf. letter dated 24 February 1988, bottom of page 2). Such interpretation of Claim 1 would also relate to features of technical interest, for instance correcting the gradation of a polydisperse emulsion layer by the addition of a small amount of a monodisperse silver halide emulsion.

In view of the indeterminate amount of polydispersed silver halide such emulsion layers could not be reliably distinguished from a usual polydisperse emulsion layer, as contained in the colour photographic materials of document (1), Example 1. The Respondent failed to explain to the

Board's satisfaction how such emulsion-containing amounts of monodispersed and polydispersed silver halide can be clearly distinguished from usual polydisperse emulsions.

Since the wording of Claim 1 provides no clear distinction of the claimed materials from those of document (1), Example 1, this ambiguity cannot benefit the Respondent. Thus, in the Board's judgment the material covered by Claim 1 is anticipated by document (1).

4. **First auxiliary request**

Claim 1 of this request suffers from the same deficiency as Claim 1 of the main request, because this claim, owing to the term "contains...monodispersed silver halide crystals" also covers photographic materials containing polydispersed silver halide besides the monodispersed silver halide.

For the reasons set out in paragraph 3, this request must therefore likewise fail.

5. **Second auxiliary request**

In contrast to the foregoing requests, only this one claims such photographic materials whose different sensitive emulsions layers consist entirely of monodispersed silver halide.

It follows from paragraph 3 that this subject-matter is novel.

This leaves to be decided whether inventive step is present in this claim.

In this context the Respondent submitted that the technical problem underlying the disputed patent was to provide a light sensitive photographic material which maintains the high sensitivity of a monodisperse emulsion but which has a broad latitude of exposure and a good gradation characteristic (see page 2, lines 3 to 4, 37 to 39 and 49 to 52) and also a stable performance during developing treatment (see page 2, lines 40 to 41).

This problem was said to have been solved by suggesting a light sensitive silver halide colour photographic material as indicated in Claim 1 with the essential feature that the at least two silver halide emulsion layers consist of at least one type of monodispersed silver halide crystals.

For proving the presence of an inventive step, the Respondent referred to an unexpected solution of the aforementioned problem, and in particular to a surprising broadening of exposure latitude by a monodisperse silver halide emulsion (see patent specification page 2, lines 49 to 50).

However, the Respondent did not at any stage of the pre-grant and post-grant proceedings demonstrate that these alleged effects - broad exposure latitude, high sensitivity, good gradation characteristic and also a stable performance during development compared to polydisperse emulsion layers - are achieved by just one type of monodispersed silver halide in the emulsion layers as claimed.

Referring to the examples in the patent specification, broadening of exposure index and good sensitivity is achieved only in those materials which contain several different types of monodispersed silver halide in one and

the same layer (see Claim 2 and example specimen 3 to 8, green sensitive layer), or, if several different types of monodispersed silver halide are distributed upon several partial layers of the same spectral sensitivity (see Example 2, specimen 11 to 15, red sensitive layer).

Referring to the experimental results submitted by the Appellant on 28 January 1989, the Appellant has adduced evidence that an exchange of a polydisperse emulsion by a monodisperse emulsion containing, (as claimed in the patent in suit), just one type of monodispersed silver halide in the two layers of different sensitivity in the same spectral region does not result in the asserted broadening of exposure latitude. This exchange - on the contrary - causes a steep gradation connected with a narrowed exposure latitude. This is demonstrated by a comparison of specimen 1 (material, containing in both layers a polydisperse silver halide emulsion) and specimen 4 (material containing in both layers silver halide completely monodispersed). The figure demonstrates a more flat gradation in the straight part of the gradation line, which means a better exposure latitude for the material containing the polydisperse emulsion. Regarding the sensitivity, no improvement for the monodispersed silver halide emulsion-containing material of specimen 4 can be recognised in this figure.

The objections raised by the Respondent against the experimental results submitted by the Appellant are, in the Board's judgment, not well founded, because the Respondent has failed to explain why polydisperse emulsions having a variation coefficient of = 0.43 and 0.40 used by the Appellant are not suited for a comparison, while polydisperse emulsions having a variation coefficient of 0.28 and 0.23 however, as used by

the Respondent in their comparison tests (Example 1, comparison specimen 1, emulsions 8 and 4) are suitable for a comparison.

Consequently, the alleged improvements, which cannot be achieved with the sole employment of the features of Claim 1, cannot support inventive step.

In the absence of counter-evidence, the Board has to rely upon the experimental results submitted by the Appellant which demonstrate the achieved results when employing the sole features of Claim 1. According to this evidence, the subject-matter of Claim 1 merely solves the problem of providing a photographic colour material of the type described in Example 1 of document (1) whose one or more layers exhibit a steeper gradation, connected with a narrowed exposure latitude.

It is true that document (2) cannot be considered as an incentive to employ monodisperse emulsions in a photographic colour material because document (2) only discloses X-ray and reprographic films. Nevertheless, it would have been obvious that the aforementioned problem could be solved by employing monodispersed silver halide containing emulsions, because it belonged to the general knowledge of the skilled man, that a monodisperse silver halide emulsion provides a narrow exposure latitude and, owing to its narrow crystal size distribution, a comparatively steep gradation. This was conceded in the patent specification page 2, lines 31 to 34 respectively. In addition, other known advantages of monodisperse emulsions (crystal size sensitivity for instance, see reference to prior art in the disputed patent specification, page 2, lines 31 to 33 and explanations in (2), original page 2, paragraph 2) would also cause a skilled person to employ monodispersed silver halide in colour materials.

6. Third auxiliary request

For the following reasons the subject-matter of this request has to be judged differently from the foregoing requests.

Claim 1 of this request is distinguished from that of the foregoing request by the feature that the emulsion layer having the lowest light-sensitivity of the at least two silver halide emulsion layers with different sensitivities contains **at least two types** of monodispersed silver halide crystals with different average crystal sizes. The novelty of this claim was undisputed, and there is no reason for the Board to deal further with this issue. Although it was not argued during oral proceedings that Claim 1 of this request lacked inventive step, the Board will (cf. Article 114(1) EPC) deal with this issue. Claim 1 contains all necessary features to solve effectively the technical problem as indicated in the patent specification, that is, to provide a light sensitive photographic colour material with a broad latitude of exposure, high sensitivity and also a stable performance during development treating. This is demonstrated by the unchallenged results of Example 1 (green sensitive layers 5 and 6). While specimen 1, representing prior art polydisperse emulsions, exhibits a LES = 2.65, indicative of exposure latitude, specimens 5 and 6 according to the invention show LES = 2.92 and 2.91 respectively. At the same time Table 3 of the printed patent specification demonstrates an improvement in sensitivity of these layers under green light from 113 and 114 respectively in comparison with the prior art (specimen 1 = 100).

This improvement brought about by the disputed patent, viz the broadening of exposure latitude, combined with high sensitivities is unexpected, because the skilled man would

expect, on the basis of his general knowledge, that monodisperse emulsions, owing to their narrow grain distribution, would lead to a photographic material with a steep gradation and narrow exposure latitude. Therefore, the choice of the photographic material of Claim 1 involves an inventive step.

The same considerations apply to the subject-matter of the dependent claims, which merely present further embodiments of the same inventive concept.

Order

For these reasons, it is decided that:

1. The Opposition Division's decision is set aside.

2. The main request and the auxiliary requests 1 and 2 are rejected.

3. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of auxiliary request 3.

The Registrar: The Chairman: